THOMSON

Service Manual

42M61NF21

1. Caution……2

2. Specifications of chassis……6

3. Alignment Procedure……11

4. IC Brief Instruction……19

5. Schematic Diagram……66

6. Block Diagram……80

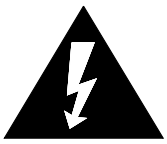
7. PCB Layout……81

8. Explode View……83

9. SpareParts……89

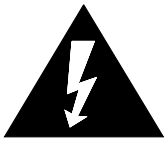
This manual is the latest at the time of printing, and does not include the modification which may be made after the printing, by the constant improvement of product.

1 **CAUTION:**
Use of controls, adjustments or procedures other than those specified herein may result in hazardous radiation exposure.



CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN.

CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lighting flash with arrowhead symbol, with an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to the person.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT SAFETY INSTRUCTIONS

CAUTION:

Read all of these instructions. Save these instructions for later use. Follow all Warnings and Instructions marked on the audio equipment.

1. Read Instructions- All the safety and operating instructions should be read before the product is operated.
2. Retain Instructions- The safety and operating instructions should be retained for future reference.
3. Heed Warnings- All warnings on the product and in the operating instructions should be adhered to.
4. Follow Instructions- All operating and use instructions should be followed.

FOR YOUR PERSONAL SAFETY

1. When the power cord or plug is damaged or frayed, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
2. Do not overload wall outlets and extension cords as this can result in fire or electric shock.
3. Do not allow anything to rest on or roll over the power cord, and do not place the TV where power cord is subject to traffic or abuse. This may result in a shock or fire hazard.
4. Do not attempt to service this television set yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
5. Never push objects of any kind into this television set through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the television set.
6. If the television set has been dropped or the cabinet has been damaged, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
7. If liquid has been spilled into the television set, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
8. Do not subject your television set to impact of any kind. Be particularly careful not to damage the picture tube surface.
9. Unplug this television set from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

10.1. Do not place this television set on an unstable cart, stand, or table. The television set may fall, causing serious injury to a child or an adult, and serious damage to the appliance. Use only with a cart or stand recommended by the manufacturer, or sold with the television set. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.

10.2. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

PROTECTION AND LOCATION OF YOUR SET

11. • Do not use this television set near water ... for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.
    • Never expose the set to rain or water. If the set has been exposed to rain or water, unplug the set from the wall outlet and refer servicing to qualified service personnel.

12. Choose a place where light (artificial or sunlight) does not shine directly on the screen.

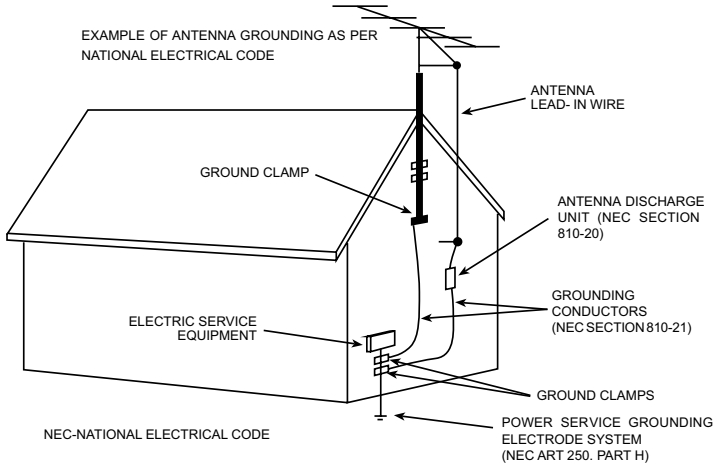
13. Avoid dusty places, since piling up of dust inside TV chassis may cause failure of the set when high humidity persists.

14. The set has slots, or openings in the cabinet for ventilation purposes, to provide reliable operation of the receiver, to protect it from overheating. These openings must not be blocked or covered.
    • Never cover the slots or openings with cloth or other material.
    • Never block the bottom ventilation slots of the set by placing it on a bed, sofa, rug, etc.
    • Never place the set near or over a radiator or heat register.
    • Never place the set in a "built-in" enclosure, unless proper ventilation is provided.

PROTECTION AND LOCATION OF YOUR SET

15.1. If an outside antenna is connected to the television set, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges, Section 810 of the National Electrical Code, NFPA No. 70-1975, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrode, and requirements for the grounding electrode.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS


EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE
ANTENNA LEAD- IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
GROUNDING CONDUCTORS (NEC SECTION 810-21)
ELECTRIC SERVICE EQUIPMENT
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250. PART H)
NEC-NATIONAL ELECTRICAL CODE

15.2. Note to CATV system installer : (Only for the television set with CATV reception)

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

16. An outside antenna system should not be located in the vicinity of overhead power lines or other electric lights or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

17. For added protection for this television set during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna. This will prevent damage due to lightning and power-line surges.

OPERATION OF YOUR SET

18. This television set should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply at your home, consult your television dealer or local power company. For television sets designed to operate from battery power, refer to the operating instructions.
19. If the television set does not operate normally by following the operating instructions, unplug this television set from the wall outlet and refer servicing to qualified service personnel. Adjust only those controls that are covered in the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the television set to normal operation.
20. When going on a holiday : If your television set is to remain unused for a period of time, for instance, when you go on a holiday, turn the television set "off" and unplug the television set from the wall outlet.

IF THE SET DOES NOT OPERATE PROPERLY

21. If you are unable to restore normal operation by following the detailed procedure in your operating instructions, do not attempt any further adjustment. Unplug the set and call your dealer or service technician.
22. Whenever the television set is damaged or fails, or a distinct change in performance indicates a need for service, unplug the set and have it checked by a professional service technician.
23. It is normal for some TV sets to make occasional snapping or popping sounds, particularly when being turned on or off. If the snapping or popping is continuous or frequent, unplug the set and consult your dealer or service technician.

FOR SERVICE AND MODIFICATION

24. Do not use attachments not recommended by the television set manufacturer as they may cause hazards.
25. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
26. Upon completion of any service or repairs to the television set, ask the service technician to perform routine safety checks to determine that the television is in safe operating condition.

2.Prodcut Specification

Model(型号):LCD42M61NF21

Specification		
	Item	description
General	ID	
	Brand	THOMSON
	Panel technology (LCD / PDP)	LCD
	Display mode	TFT LCD
	Display Type	TFT LCD
	Category (Monitor/TV/…)	TV
	Market Position (Scenium/Intuiva/Mid/Access,,,)	ACCESS
	FG Supplier (TTE/External supplier)	TTE
	FG assy location (ZY/AN/HZ/External supplier)	ZY
	Cabinet Design (Example: SC VII, V 6,,,)	M61
	PJO Nb	M61
	EAN Code	3244480283943
	Tocom code	
	Product number	
	Predecessor (replace)	-
	Chassis name	MT02+DE200
	Homologation (Gostandard/CE/MPTT/…)	CE
	MP date request by PC (ETA)	
	MP date confirmed by supplier (ETD/ETA)	
	Screen size : diagonale (inch)	42
	Aspect ratio (16/9 // 4/3 // 15/9)	16/9
	Color depth (8/10/12 bits)	8
	1st panel supplier : panel suppliers	50 Hz progressive scan
	1st panel supplier : panel reference	LPL
	1st panel supplier : resolution	**LC420WU1-SLB1**
	1st panel supplier : pixel Pitch (mmxmm)	1920x1080
	1st panel supplier : Horizontal and vertical viewing angle	0.1615x0.4845
	1st panel supplier : Typical response time (Grey to Grey)	178/178
	1st panel supplier : Typical response time (tr+tf)	8
	1st panel supplier : Typical white luminance (Nits)	18

Picture	1st panel supplier : Contrast VESA std	550
	1st panel supplier : Typical panel Life Time (Hours)	800:1
	2st panel supplier : panel suppliers	60,000
	2st panel supplier : panel reference	
	2st panel supplier : resolution	
	2st panel supplier : pixel Pitch (mmxmm)	
	2st panel supplier : Horizontal and vertical viewing angle	
	2st panel supplier : Typical response time (Grey to Grey)	
	2st panel supplier : Typical response time (tr+tf)	
	2st panel supplier : Typical white luminance (Nits)(1st source/2nd source)	
	2st panel supplier : Contrast VESA std(1st source/2nd source)	
	2st panel supplier : Typical panel Life Time (Hours)(1st source/2nd source)	
Video	Noise Reduction (adaptative/…)	Yes
	Comb Filter (2D/3D)	3D
	Deinterlacer (no/linerar/motion adaptive/motion compensative)	linerar/motion adaptive/motion compensative
	Film mode / reverse 3:2 pull down	yes / yes
	Format control (Pin8/WSS)	Yes/Yes
	16/9 autoformat (black bars canceller)	no
	Zoom type : 4/3 format	Yes
	Zoom type : 14/9 Zoom	no
	Zoom type : 16/9 Zoom	Yes
	Zoom type : 16/9 Zoom up/down	No/No
	Zoom type : Cinerama	Yes
	Zoom type : 16/9Format	Yes
	Colour preset (Cool/Normal/Warm/Favourite)	Cool/Normal/Warm
	Contrast expend (low/medium/high)	high
	Picture Reset	on factory menu
	Backlight Adjust	on factory menu
	Picture Autoadjustment (PC mode)	Yes
	Picture presets : Standard / Film / Studio / Sport / Personal / Game / Video Camera	Standard / Film / Studio / Sport / Personal
Sound	Music Power (Watt)	2*15W
	RMS Power (Watt)	2*8W
	Graphic Equalizer	Yes
	Treble, Bass, Balance, Volume, Mute Control	-/-/ Yes/Yes/Yes
	Sound presets (My sound/Music/Film/Voice/Flat/Standard/Panorama)	normal/personal/rock/pop/live/dance/techno/classic/soft
	Sound techno (Stereo Nicam/Virtual Dolby Surround/SRS Trusurround XT/BBE Viva/SRS WoW /…)	NICAM,German Stereo,Virtual surround
	Loudspeakers built in (T/M/B)	-/2/-
	DPS/DPS+	-
	Standard	BG/DK/I/LL`

Decoding capability	Color System (PAL/SECAM/NTSC)	PAL/SECAM/NTSC(AV)
	DVBT (yes/no)	Yes
	Video standard NTSC 3.58 / 4.43 (AV)	Yes
	HD capability	YES (720p, 1080i 50/60; 1080p 25/30; 480i/p; 576i/p)
	Compatible video format if DVD/USB: DviX/VCD/SVCD/JPEG/AVI/MPEG2/WMV- HD/SD	-
	Compatible audio format if DVD/USB: MP3/WMA/AAC/MPEG1/…	-
	PC capability (up to maximum format)	1280*1024 60Hz
	Playable Discs (CD/CD-R(RW)/CD-ROM/DVD+R/+RW/-R/-RW)	–
	Card reader format compatibility	-
User convenience	IB languages	DE, FR, IT, ES, EN, PL, CS, HU, RU, PT, EL, NL, SV, DA, FI, NO
	DVD player (No/slot/tray)	No
	Program Numbers (example: 99+3AV)	99+1AV+2SCART
	Number of buttons on cabinet (Power; Vol+/-; Pr+/-, Menu)	Power, PR +/–, Vol +/–, Menu
	Main switch button (yes/no)	No
	Clock	Yes
	Sleep timer	Yes
	wake-up timer	Yes
	Calendar / Games	Yes/-
	Parent Control - Channel lock (Input code for certain channel)	Yes
	Parent Control - Child lock (set the lock of the keyboard, only the RCU can control the TV)	Yes
	Parent Control - Kid pass (preset the ontime, channel for each day of the week)	No
	Parent Control - Channel lock (For digital transmission and DVD program, to filter some programms)	Yes
	Program auto switch off	No
	OSD Language*	Germany、English、Netherlandish、Italian、Finnish、Spanish、Danish、French、Portuguese、Poland、Norwegian、Swedish、 Czechic
	OSD Positioning	No
	OSD Transparency Adjust	No
	OSD Timeout Adjust	No
	Text Standard: (Top, FLOF,,,)	TOP & FLOF
	Teletext Level: 2.5 / 1.5	1.5
	Pages for teletext	1000
	Teletext character sets ****	Latin Pan-Euro West Latin Pan-Euro East Cyrillic West Greek West Arabic West
	TV Guide	No
	Auto Naming/Auto Sorting	Yes/Yes

	Auto update (for DVBT software ugrades)	No
	Multipicture : PIP (Double Tuner) / PIP (AV) / PAP / PAT / PIC	only PAT
	Hotel mode (Y/N)	No
	Tuner FM (yes/no)	No
Connectors (if possible, please indicate the position)	RF Input (Antenna): Analogical / Digital	1 /1
	Scart 1 : CVBS / RGB / S-VIDEO	1/1/-
	Scart 2 : CVBS / RGB / S-VIDEO	1/-/1
	Scart 3 : CVBS / RGB / S-VIDEO	-
	CINCH audio in / out (No volumpe control on Audio out/can be jack 3,5mm)	1(side)/1
	CINCH video in / out	1(side)/-
	S-video in / out	-/-
	Component Video Input (YCrCb/YPrPb)	1
	Component Audio Input (YCrCb/YPrPb)	Share with the VGA Audio input
	VGA in / Audio L/R in / Jack audio in 3.5mm	1/1/-
	HDMI	2
	DVI-HDCP	Share with HDMI
	Audio input for DVI – HDCP	Share with Audio VGA
	CINCH subwoofer out / Coaxial out (SP-DIF)	-/-
	Headphone connector (mm)	1 (side)
	RS232 (Y/N)	-
	Card Readers	-
	USB slot (NO/1.1/2)	-
	DVBC-I (common interface)	yes
	External power converter	-
Accessories included	Remote control reference	RCT 311TV1G
	Carton (English/French/Spanish)	yes(English)
	Batteries	yes
	IB	yes
	Product registration Card	no
	AC power cords	yes
	Audio Cord (Jack 3.5mm)	no
	VGA Cord	no
	Wallmount	No
	Antenna Cable	no
l Data	Size (W x H x D, with stand) in mm	1058X765X270
	Size (W x H x D, without stand) in mm	1058X711X116
	Package Size (W x H x D, with stand) in mm	1214*364*889

General	Net Weight in kg	27.5
	Gross Weight in Kg	33
	Power supply	220V50Hz
	Power consumption working / standby / Annual	240W/ 1W /-
Design / Mechanical	Wallmount VESA compatible (standard reference)	VESA compatible
	Adaptor for VESA wallmount compatibility (accessory ref)	no
	Desktop Stand (included/optionnal + ref/NO)	yes
	Panel Tilt (Fowards/Backwards/Rotation)	no
	Swivel function desktop stand (yes/no) + motorized?	no
	Docking station (yes/no)	no
	Floor Stand (included/optionnal + ref/NO)	no
	Glass shield (yes/no)	no
	Finish on Front	GES704S as moulded (high glossy black)
	Finish on side	RBK60TH(A8252) as moulded (black)
	Finish on back	RBK60TH(A8252) as moulded (black)
	ID specification reference (file name)	-
	Graphic specification reference (file name)	-
	Finish on stand	Transparent
	number of colors on carton box	1
	Brand logo	Thomson Inlet
	Other logo	Full HD/DVB on front
	Screen Stikers	-
	External AC/DC Power with DC power cord (yes/no)	no no grounded plug
	Handle (yes/no)	no
	Detachable speaker (yes/no)	no
	Number of Speaker	2
	Rating Label langages	DE, FR, IT, ES, EN, PL, CS, HU, RU, PT, EL, NL, SV, DA, FI, NO
	Rating Label Logos/Icons (GOST, Bin, Recycling, Caution, …)	TBD

3.Alignment Procedure

General Description

LCD42/37M61NF21 is designed for Europe, using 37/42 inch Full HD panel. The main chip is MTK8206. Support 1x RF in, 0.5x SCART, 1XSCART, 1xYPbPr, 1xVGA, 1xside AV include YC input, 2xHDMI,1x headphone out, 1xDVB-T input. The detail please refer the SyRS）

1、Main board alignment

For Analog part

Before power on, please check and make sure the output of U20，U21，U22，U23,U24，U30，U31 are not shorted to grand.

Supply 5v to P504 and test the output of U20, the normal is 3.3V+/-5%, the U21 output should be 1.8V+/-5%

Download the SW to the main chip, please see the chapter of how to download

Check all the function of the all others board on the test tool

For PCMCIA interface

Digital module servicing and debug *hints*.

Mainly point:

1. Check PCB and each section power supply: 12V, 5V, 1.2V,1.8V ,3.3V.

2. Switch on the power, then measure the signal of output port of video and audio.

If no output, check the following point:

1) video output of CPU section.

2) 4Mhz clock of the tuner output

3) Output of chip 74AHC1GU04(position U24 of schematic). 4Mhz clock signal to CUP(PNX8314).

4) Signal of SDRAM and flash chip when working .

5) Audio DAC (component's position U6 of schematic.

By contraries, enter the menu's manual research item, and set appointed channel number, check the signal indicator on TV screen.

3. Normal there is a signal level display on the menu.

If no displaying for the signal state indicated information, check the following point:

1) 4Mhz clock signal of the tuner output,

2) Output of chip 74AHC1GU04(component's position U23 of schematic).

3) Else channel decoder schematic section.

4. When it display the signal state indicated information, Press "ok' button, and research program. It will not play the program if not get the program

list. Please check: components of the TS output from TDA10046 to CPU.

5. Inset the CAM card(PCMCIA CARD) to CI connector, the integrated system will

detect it. if system has not found it, please check:

1) Input clock of Chip CIMAX SP2, The clock outputs from XD1 (component XD1 of schematic) to chip CIMAX SP2.
2) Components and schematic of CI section ,

6. If not communication from ATV to digital module, Please check: I2C of

the ATV(MT01 section) and digital module.

7. Check the SPDIF output. Connect SPDIF to Digital Power Amplifier.

Note: 4Mhz clock signal is sent out from tuner(TD1316A-MK3), then distributed the clock to tda10046aht and pnx8314.

2、Final alignment

Fix mainboard on the test tool，power on ，check and make sure all the port are good

Source	Test signal	Test pattern	Conclusion
Tuner	Cable	Full band	Picture & sound is ok
SCART1/2/SAV-CVBS	PM5418	PAL, half color & Gray bar	Picture & sound is ok
SCART1/SAV-YC	PM5418	PAL, half color & Gray bar	Picture & sound is ok
SCART1/-RGB	PM5418	PAL, half color & Gray bar	Picture & sound is ok
SCART1 CVBS out	cable	First channel	Picture & sound is ok
HDMI	DVD with HDMI certification	Movie,720p @60Hz	Picture & sound is ok
VGA	Chorma 2326 or 2327	1024x768@60Hz haft color & Gray	Picture & sound is ok
headphone	Cable	First channel	sound is ok
Loud speaker	Cable	First channel	Phase is OK
YUV(YPbPr)	chroma2327/BSG-360A/DVD	1080i@60Hz haft color & Gray	Picture & sound is ok

3、The way to Factory menu

Enter the factory menu (can use the IR and press the remote key “vol-”to “0’, press mute remote key ,then press 9,7,3,5 remote key. Press right key to

enter the sub-menu and press MENU key to return the main-menu

4、Balance Adjust

Adjust the temperature in CMP, VGA, AV. Please make sure the picture mode is set to “Stand”, the “Picture→ Black expand” on the user Menu is set to “OFF”. “Other→Flesh Tone & Adaptive Luma Control ” on the factory Menu is set to “OFF”. After Alignment, all the item will change to “ON”

ADC Adjust：

A. For CMP input, the test signal is 576i/50Hz, 100%, 8 steps colour bar. Select the “Balance→RGB Calibrate” on the factory Menu, then press ”→”., ADC adjust is finished after “OK” is displayed

B. For VGA input, the test signal is 1024×768/60Hz，white/black grid. Select the “Balance→RGB Calibrate” on the factory Menu, then press ”→”., ADC adjust is finished after “OK” is displayed

1）. VGA :

For VGA input, the test signal is 1024×768/60Hz，16 steps gray bar. Set the “Balance→ Tone” on factory menu to “Normal”:

A、For the third step form the white bar, Adjust the value of White R、White G、White B, until the color temperature is x=280±5，y=290±5，Y > 220nit

B、For the second step form the black bar, Adjust the value of Gray R、Gray G、Gray B, until the color temperature is x=280±5，y=290±5，Y < 25nit

C、repeat A&B, until all is ok

D、Adjust the value of Black level

2）. AV

For AV3 input, the test signal is PAL，8 steps gray bar. Set the “Balance→ Tone” on factory menu to “Normal”:

A、For the third step form the white bar, Adjust the value of White R、White G、White B, until the color temperature is x=280±5，y=290±5，Y > 220nit

B、For the second step form the black bar, Adjust the value of Gray R、Gray G、Gray B, until the color temperature is x=280±5，y=290±5，Y < 25nit

C、repeat A&B, until all is ok

D、Adjust the value of Black level

3）. **CMP**

For CMP input, the test signal is 576i/50Hz，16 steps gray bar. Set the “Balance→ Tone” on factory menu to “Normal”:

A、For the third step form the white bar, Adjust the value of White R、White G、White B, until the color temperature is x=280±5，y=290±5，Y > 220nit

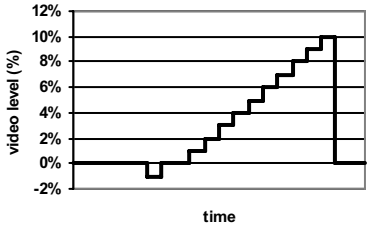
B、For the second step form the black bar, Adjust the value of Gray R、Gray G、Gray B, until the color temperature is x=280±5，y=290±5，Y < 25nit

C、repeat A&B, until all is ok

D、Adjust the value of Black level

4). Adjust the value of Black level

Measurements are using 'SCALBRI2.UPA' patterns with -1% to 10% video level bars.



Basic video signal is following:

Change the Black level to make sure the value is 0-3%.

5、Factory Menu definition：

1）. System

Item	Sub-item	
	Power Mode	Remember：Remember the state of
	Factory Key	OFF：Factory Key is invalidation
	Tuner AGC	12
	Key Board	On：the keypad board is locked, only
	LOGO	Select the POWER ON LOGO
	Pattern	Come from IC MT8201. It is used for
	Back Light	Peak White Alignment
	Reset	Reset EEPROM data, and load the

2). Balance

Balance	Source	For balance source
	White R	Normal/Warm/Cool
	White G	G White balance
	White B	B White balance
	Gray R	R Gray balance
	Gray G	G Gray balance
	Gray B	B Gray balance
	RGB Calibrate	ADC adjust
	Black Level	

3). TV Geometry

Item	Sub-item	
TV Geo	Color System	
	H POS	Horizontal Position
	H SIZE	Horizontal Size
	V POS	Vertical Position
	V SIZE	Vertical Size
	Scaling Brightness	User Menu's Brightness
	Scaling Contrast	User Menu's Contrast
	Scaling Colour	User Menu's Colour
	Scaling Hue	User Menu's Hue

4). Nicam All of item are for Debug, Don't modify!

Item	Sub-item	
Nicam	Correct Thres	5
	Sync Loop	50
	Error Thre	6
	ParityErrorThres	47
	EveryNumFrames	32

5). Mono All of item are for Debug, Don't modify!

Item	Sub-item	
	High DEVI	OFF
	AM Mute	ON
	AM Mute High	69
	AM Mute Low	53
	Carrier Shift	OFF
	Saturation Mute	OFF
	FM mute	ON

	FM mute High	24
	FM mute Low	19

6). Sound Volume Curve

Item	Sub-item	
Sound	VOL_0	0
	VOL_10	1
	VOL_50	60
	VOL_90	204
	VOL_100	254
	TV Pre	TV pre- amplify
	AV Pre	TV pre- amplify
	SWPREQ	For debug

7). Other 项 All of item are for Debug, Don't modify!

Item	Sub-item	
Other	Blue Mute	ON
	CTI	Middle
	Flesh Tone	Switch to "OFF" during alignment and CAL Measurement. Swtich to "ON" for Out of Box Settings
	Adap Luma….	Switch to "OFF" during alignment and CAL Measurement. Swtich to "ON" for Out of Box Settings
	Deinter Mode	Automatic
	WhitePeak limitor	Switch to "OFF" during alignment and CAL Measurement. Swtich to "ON" for Out of Box Settings
	MDDi Edge Pre	High
	TTX Contrast	10
	Seamless	Off

8). INFO SW version information

Info	Project	LCD32MT01M1
	Version	XXXXXX
	Date	2007-1-5

6、Factory default settings：

USER MENU	Source	TV(channel 1)
	Picture Preset	Standard
	Black expand	ON
	Tone	Normal
	Noise reduction	Low
	Volume	30
	Sound type	Automatic
	Virtual Surrond	OFF
	Auto Volume	OFF
	Sound effect	OFF
FACTTORY MENU	FACTTORY-KEY	OFF
	POWER ON	OFF
	Flesh Tone	ON
	Adaptive Luma Control.	ON

7．Analog board software update

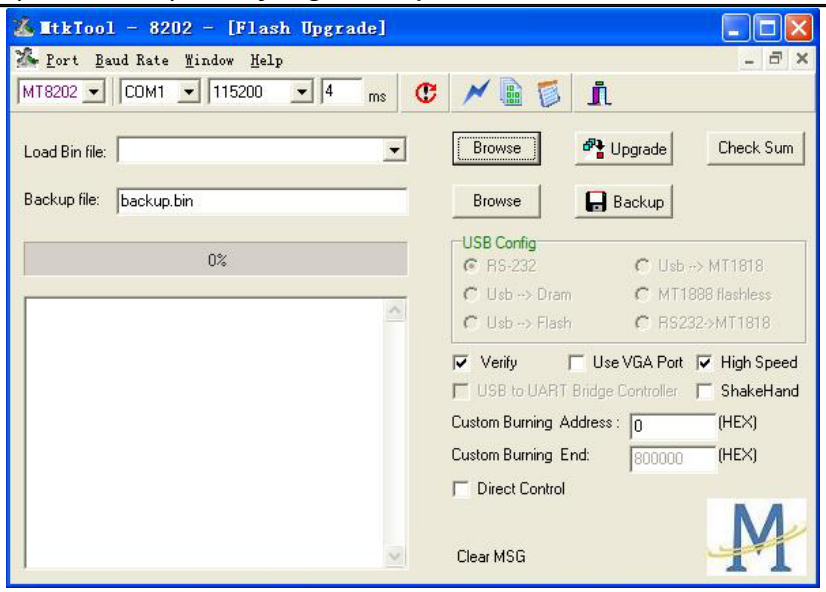
Solution 1：

Prepare MTKTOOL UPDATE, update board, serial line.

(1)、Connect PC, update board, and J3 on the main board with serial line

(2)、Provide the STB +5V for main board

(3)、Open “MtkTool.exe” in MTK TOOL program, and set the parameter as below picture



(4)、Press “Browse” for selecting the SW.

(5)、Press “Upgrade” to download the SW. It will be OK when it show “100%”

(6)、After downloading SW, it will be long time for Initializing EEPROM.

Solution 2：

Preparative is same with above.

Set SYSTEM->FactoryKey on factory MENU to OFF. Connect the device as below picture.

Update the SW follow solution1- (3), (4), (5), (6)

1. Features description

MT8206 is a highly integrated single chip for LCD TV supporting video input and output format up to HDTV. It includes 3D comb filter TV decoder to retrieve the best image from popular composite signals. Embedded HDTV/VGA decoders enable the high quality video reproduction. 24/16/8 bits digital port may accept all kinds of external digital input video source. New 3rd generation advanced motion adaptive de-interlacer converts accordingly the interlace video into progressive non-flicking video. 2D Graphic engine generates high quality UI interface. Advanced full function color processing with fully 10-bit path provides high quality video contents. Independent two Flexible scalars provide wide adoption to various LCD panels for two of different video sources at the same time. Its on-chip audio processor decodes analog signals from tuner with lip sync control, delivering high quality post-processed sound effect to customers. On-chip microprocessor reduces the system BOM and shortens the schedule of UI design by high level C program. MT8206 is a cost-effective and high performance HDTV-ready solution to LCD TV product.

FEATURE List

■ Analog front end

- 1 set of high resolution ADC with corresponding PGAs adopting to 0.5V~2V input dedicated for TV/AV/SV input signals
- 3 high speed ADCs dedicated for VGA/HDTV input signals up to 160MHz
- All 8-bit programmable gain pre-amplifiers
- Embedded Schmitt trigger and deglitch circuits on Hsync/Vsync/SOG/SOY inputs

■ Video Input

Embedded input Multiplexers without external switch including

- 10 for TV/AV/S-video input pins available for any possible combination
- 3 sets for VGA/Component/Scart/D-connector with differential input pairs
- 1 24/16/8 bit digital port for ITU601/656/RGB video format
- 1 additional 8 bit digital port for ITU656 video format
- All the input sources can be flexibly routed to Main/PIP internally

■ Sync Processor

- Two enhance sync processors for all timing detection supporting Macrovision detection
- Enhanced measuring mechanism for VGA auto adjustment

■ Decoder

TVD

- Single 3rd generation TV decoder
- Automatic TV standard detection supporting NTSC, NTSC-4.43, PAL (B, G, D, H, M, N, I, Nc), PAL (Nc), PAL, SECAM
- Enhanced 3rd generation NTSC/PAL Motion Adaptive 3D comb filter

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- Embedded VBI decoder for Closed-Caption/XDS/ Teletext/WSS/VPS
- Supporting Macro vision detection

YPbPr/Scart/D-connector

- Supporting HDTV 480i/480p/576i/576p/720p/1080i input
- Smart detection on Scart function for European region
- Smart detection on D-connector for Japan region
- Supporting SCART RGB inputs mixed with composite signal by adjustable horizontal delay

VGA

- Supporting various VGA input timings up to SXGA (1280x1024@75Hz).
- Supporting Separate/Composite/SOG sync types

Digital port

- 1 digital port supporting DVI 24-bit RGB or CCIR-656/601 digital video input format
- 1 additional 8 bit digital port for ITU656 video format

VBI

- Dual VBI decoders for the application of V-Chip/Closed-Caption/XDS/ Teletext/WSS/VPS
- Supporting external VBI decoder by YPbPr input
- VBI decoder up to 1000 pages Teletext.

■ Video Processor

Noise Reduction

- All Video input source with motion adaptive 3D noise reduction

Color Management

- Fully 10-bit processing to enhance the video quality
- Advanced flesh tone and multiple-color enhancement. (For skin, sky, and grass…)
- Gamma/anti-Gamma correction
- Advanced Color Transient Improvement (CTI)
- Saturation/hue adjustment

Contrast/Brightness/Sharpness Management

- Sharpness and DLTI/DCTI
- Brightness and contrast adjustment
- Black level extender
- Adaptive Luma/Chroma management

De-interlacing

- 3rd generation advanced Motion adaptive de-interlacing
- Automatic detect film or video source
- 3:2/2:2 pull down source detection
- Main/PIP 2 independent de-interlacing processor

Scaling

- 3rd generation high resolution arbitrary ratio vertical/horizontal scaling of video, from 1/32X to 32X
- Advanced linear and non-linear Panorama scaling.
- Picture-in-Picture (PIP)
- Picture-Out-Picture (POP)

Display

- Advanced dithering processing for LCD display with 6/8/10 bit output
- 10bit gamma correction
- Supporting alpha blending for Video and two OSD planes
- Frame rate conversion

Seamless performance comparing demonstration function

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- Support Left/Right video processing comparing function without additional resources (DRAM…) for customers' demonstration
- All the video functions (De-interlace/3D comb/NR/Flesh tone/CTI) can be included

Video Output

- Programmable output timing for 1080p panel.
- Dual-channel 6/8-bit LVDS, single channel 6/8/10-bit LVDS
- Supporting video output mirror and upside down
- 1 CVBS bypass output of CVBS/S-video(mixed) input

Audio Features

- Supporting BTSC/EIAJ/A2/NICAM decode
- Stereo demodulation, SAP demodulation
- Mode selection (Main/SAP/Stereo)
- Equalizer
- Sub-woofer/Bass enhancement
- MTK proprietary 3D surround processing (Virtual surround)
- Audio and video lip synchronization
- Supporting Reverberation

Audio Input/Output

- Decode audio AF from Tuner
- 1 set of audio L/R digital line in (MT8206 is Master)
- 7.1-channel slave digital line in
- Supporting total 12-channels including full 7.1-channels digital output, 2- channel bypass and 2-channel headphone output.
- Embedded 3 internal audio DACs
- Supporting 1 Tuner audio decoder and 1 digital input and both output for SCART1/2 output application

2D-Graphic/OSD processor

- Embedded two backend RGB domain OSD planes and one YUV domain OSD plane. To support Main/PIP Teletext/Close-caption functions together with setup menu
- Supporting alpha blending among these two planes and video
- Supporting Text/Bitmap decoder
- Supporting line/rectangle/gradient fill
- Supporting bitblt
- Supporting color Key function
- Supporting Clip Mask
- 65535/256/16/4/2-color bitmap format OSD,
- Automatic vertical scrolling of OSD image
- Supporting OSD mirror and upside down

Host Micro controller

- Turbo 8032 micro controller
- Built-in internal 373 and 8-bit programmable lower address port
- 2048-bytes on-chip RAM

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- Up to 4M bytes FLASH-programming interface
- Supporting 5/3.3-Volt. FLASH interface
- Supporting power-down mode
- Supporting additional serial interface
- IR control serial input
- Supporting 2 RS232 interface for external source communication
- Supporting single interface directly supporting SD/MS/MMC memory card
- Supporting 2 PWM output
- Programmable GPIO setting for complex external device control

DRAM Controller

- Supporting up to 32M-byte SDR/DDR DRAM
- Supporting 2x16 bit SDR/DDR bus interfaces
- Build in a DRAM interface programmable clock to optimize the DRAM performance
- Programmable DRAM access cycle and refresh cycle timings
- Supporting 3.3/2.5-Volt SDR/DDR Interface

DRAM Usage

- For features of 8206, Dual 8Mx16 DDR are used.
- It is recommended to use dual 8Mx16 DDR (32MB) for following basic features.

Function	Full Screen	PIP/POP
3D-Comb	Y	When POP mode, Main=AV, Sub=1080I, only one of HD MDDi and Comb can be enable. (for POP)Case i: Main=AV(with 3D Comb), Sub=1080i(Bob mode) (for POP)Case ii: Main=1080i(Bob mode), Sub=AV(with 3D Comb) (for POP)Case iii: Main=AV(without 3D Comb), Sub=1080i(HD MDDi) (for POP)Case iv: Main=1080i(HD MDDi), Sub= AV(without 3D Comb) When PIP mode, there is no constraint in 3D-Comb and MDDi.
MDDi	Up to 1080i MDDi	
Scale mode	Normal/Full	Normal/Full
VGA timing	Up to 1280x1024@75Hz	Up to 1280x1024x60Hz
Panel	1080P	

- For PIP/POP mode, 1280x1024 should be under 60Hz.
- Case lists are evaluated when Dram clock = 169 MHz,DDRx2.

Flash Usage

- Flash is used to store FW code, fonts, bitmaps, big tables for VGA, Video, Gamma..
- In our demo system, we can support 2-4 languages within 1MB flash.
- For single country, we need around 20KB to store font data.
- For more bitmaps, we need more flash space to store them.
- 2Mbytes is recommended to build a general TV model.

Outline

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- 388-pin BGA package
- 3.3/2.5V/1.8-Volt. operating voltages
- 0.18um process

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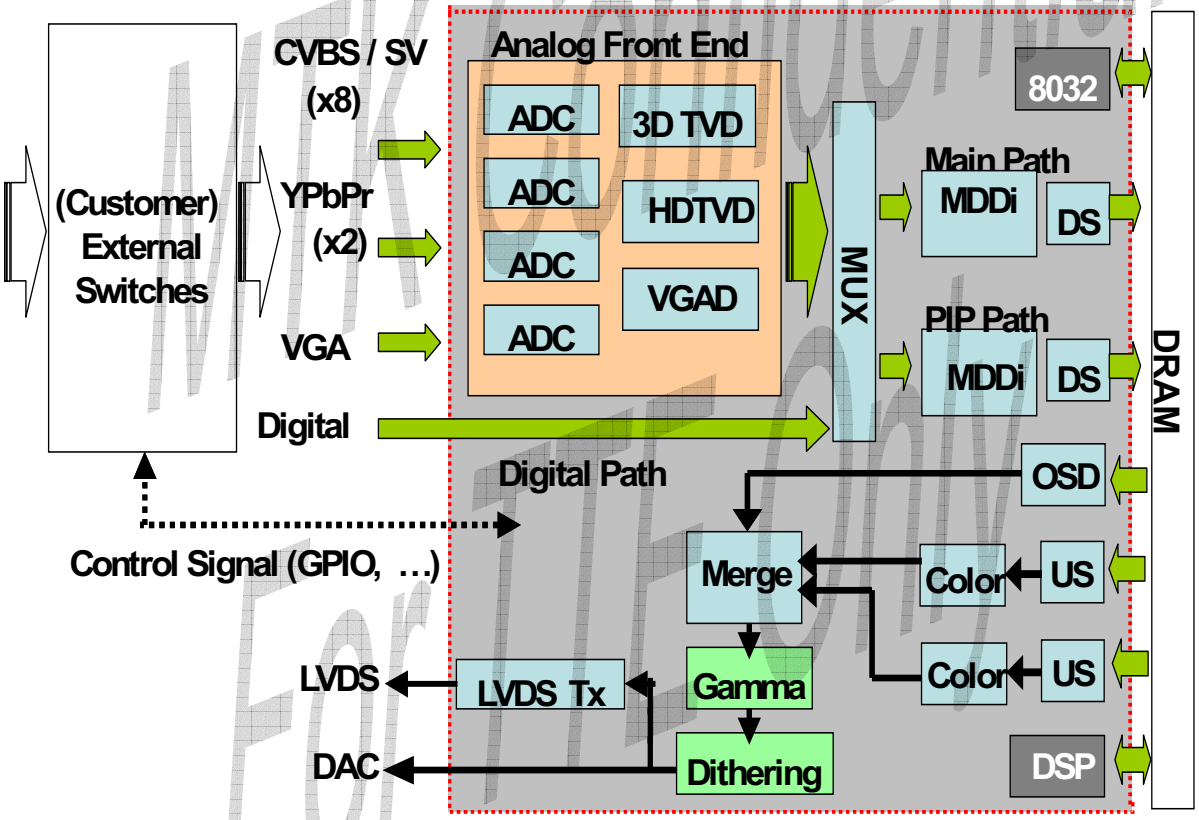
June, 2006

3. BLOCK DIAGRAM



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4. MT8206 PIN DESCRIPTION

4.1 GENERAL PIN LIST:

Item	Symbol	Pin #	Type	Description
DIGITAL				
Power/Ground (41)				
1	DVDD33A	D5, H4	I	3.3V power (necessary when power saving)
2	DVDD33	AA4, AC17, AC20	I	3.3V power for all the 3.3V I/O pins
2	DVSS33	L11, N12, R15, T16	I	3.3V ground
3	DVDD25	AC5, AC6, AC7, AD5, AD6,	I	2.5V power for DDR (for 16/32 bit DDR)
	DVDD25OPT	AC14, AC15, AD15	I	2.5V power for DDR (for 32 bit DDR), 3.3V power for GPIO
	DVSS25	N11, P11, R11, T11, R13, T13, T14	I	2.5V ground for DDR (for 16/32 bit DDR)
5	DVDD18A	K3, K4	I	1.8 V power (necessary when power saving)
	DVDD18	U3, U4, AC8, AC9, AC22, AC23	I	1.8 V power for internal digital part
6	DVSS18	L12, M11, M12, P12, R12, R14, R16, T12, T15	I	1.8 V ground
RS232 (2)				
1	RXD	M3	I	RS232 received data, 2mA
2	TXD	M4	O	RS232 transmitted data, 2mA
Serial interface (6)				
1	SCL	AA2	O	1) GPIO, 2mA 2) Clock of master serial interface, 2mA
2	SDA	AA1	I/O	1) GPIO, 2mA 2) Data of master serial interface, 2mA
3	SCL0	U23	I/O	1) Clock of slave0 serial interface, 2mA 2) GPIO 3) RS232 RXD
4	SDA0	V23	I/O	1) Data of slave0 serial interface, 2mA 2) GPIO 3) RS232 TXD
5	SCL1	AB24	I/O	1) Clock of slave1 serial interface, 2mA 2) GPIO
6	SDA1	AB23	I/O	1) Data of slave1 serial interface, 2mA 2) GPIO
Digital Audio Interface (8)				
1	AOMCLK	M1	O	Audio out master clock, 2~16mA, SR(optional), SMT
2	AOLRCK	N3	O	Audio out left-right clock, 4mA, SR, SMT

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Item	Symbol	Pin #	Type	Description
3	AOBCK	N1	O	Audio out bit clock, 2~16mA, SR(optional), PD(optional), SMT
4	AOSDATA0	P1	O	1) GPIO (default, input in initial state) 2) Audio out data line 0, 4mA, SR, PD(optional), SMT
5	AOSDATA1	P2	O	1) GPIO (default, input in initial state) 2) Audio out data line 1, 4mA, SR, PD(optional), SMT
6	AOSDATA2	P3	O	1) GPIO (default, input in initial state) 2) Audio out data line 2, 4mA, SR, PD(optional), SMT
7	AOSDATA3	P4	O	1) GPIO (default, input in initial state) 2) Audio out data line 3, 4mA, SR, PD(optional), SMT
8	LIN	N4	I	Audio line in
Microcontroller and Flash Interface (38)				
1	HIGHA0	G2	I/O	Microcontroller address 8, 2~16 mA, PU, works in stand-by mode
2	HIGHA1	F3	I/O	Microcontroller address 9, 2~16 mA, PU, works in stand-by mode
3	HIGHA2	F4	I/O	Microcontroller address 10, 2~16 mA, PU, works in stand-by mode
4	HIGHA3	E1	I/O	Microcontroller address 11, 2~16 mA, PU, works in stand-by mode
5	HIGHA4	E2	I/O	Microcontroller address 12, 2~16 mA, PU, works in stand-by mode
6	HIGHA5	E3	I/O	Microcontroller address 13, 2~16 mA, PU, works in stand-by mode
7	HIGHA6	E4	I/O	Microcontroller address 14, 2~16 mA, PU, works in stand-by mode
8	HIGHA7	D1	I/O	Microcontroller address 15, 2~16 mA, PU, works in stand-by mode
9	AD7	C4	I/O	Microcontroller address/data 7, 2~16 mA, SR, works in stand-by mode
10	AD6	B1	I/O	Microcontroller address/data 6, 2~16 mA, SR, works in stand-by mode
11	AD5	B2	I/O	Microcontroller address/data 5, 2~16 mA, SR, works in stand-by mode
12	AD4	A2	I/O	Microcontroller address/data 4, 2~16 mA, SR, works in stand-by mode
13	AD3	B3	I/O	Microcontroller address/data 3, 2~16 mA, SR, works in stand-by mode
14	AD2	A3	I/O	Microcontroller address/data 2, 2~16 mA, SR, works in stand-by mode
15	AD1	B4	I/O	Microcontroller address/data 1, 2~16 mA, SR, works in stand-by mode
16	AD0	A4	I/O	Microcontroller address/data 0, 2~16 mA, SR, works in stand-by mode
17	IOA0	C2	I/O	Microcontroller address 0 / IO, 2mA, SR, PU, works in stand-by mode
18	IOA1	C1	I/O	Microcontroller address 1 / IO, 2mA, SR, PU, works in stand-by mode

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Item	Symbol	Pin #	Type	Description
19	IOA2	D4	I/O	Microcontroller address 2 / IO, 2mA, SR, PU, works in stand-by mode
20	IOA3	D3	I/O	Microcontroller address 3 / IO, 2mA, SR, PU, works in stand-by mode
21	IOA4	G1	I/O	Microcontroller address 4 / IO, 2mA, SR, PU, works in stand-by mode
22	IOA5	H3	I/O	Microcontroller address 5 / IO, 2mA, SR, PU, works in stand-by mode
23	IOA6	H2	I/O	Microcontroller address 6 / IO, 2mA, SR, PU, works in stand-by mode
24	IOA7	H1	I/O	Microcontroller address 7 / IO, 2mA, SR, PU, works in stand-by mode
25	A16	D2	I/O	2mA, PU, works in stand-by mode 1) Flash address 16 2) GPIO
26	A17	C3	I/O	2mA, PU, works in stand-by mode 1) Flash address 17 2) GPIO
27	IOA18	G3	I/O	2mA, SR, PD, SMT, works in stand-by mode 1) Flash address 18 / IO 2) GPIO
28	IOA19	G4	I/O	2mA, SR, PD, SMT, works in stand-by mode 1) Flash address 19 / IO 2) GPIO
29	IOA20	F2	I/O	2mA, SR, PD, SMT, works in stand-by mode 1) Flash address 20 / IO 2) GPIO → **The GPIO function can work in the standby mode**
30	IOA21	F1	I/O	2mA, SR, PD, SMT, works in stand-by mode 1) Flash address 21 / IO, While External FLASH size <= 2MB 2) GPIO → **The GPIO function can work in the standby mode**
31	IOALE	J1	I/O	Microcontroller address latch enable, 2mA, PU, SMT, works in stand-by mode
32	IOOE#	B5	I/O	Flash output enable, active low / IO, 2mA, SR, PU, SMT, works in stand-by mode
33	IOWR#	J2	I/O	2mA, PU, SMT, works in stand-by mode 1) Flash write enable, active low / IO 2) GPIO
34	IOCS#	A5	I/O	SmA, SR, SMT, works in stand-by mode 1) Flash chip select, active low / IO 2) GPIO
35	UWR#	K1	I/O	Microcontroller write strobe, active low, 2mA, PU, SMT, works in stand-by mode
36	URD#	K2	I/O	Microcontroller read strobe, active low, 2mA, PU, SMT, works in stand-by mode
37	UP3_4	L3	I/O	Microcontroller port 3-4, 2mA, PU, SMT, works in stand-by mode
38	INT0#	L1	I/O	Microcontroller external interrupt 0, active low, 2mA, PU, SMT, works in stand-by mode
DIGITAL MISC (5)				
1	PRST_	L2	I	power on reset, works in stand-by mode
2	ICE	M2	I	ICE mode, works in stand-by mode

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Item	Symbol	Pin #	Type	Description
3	PWM0	AD17	I/O	1) GPIO (default, input in initial state), 2mA 2) PWM output 0, 2mA
4	PWM1	AC18	I/O	1) GPIO (default, input in initial state), 2mA 2) PWM output 1, 2mA
5	IR	L4	I/O	IR control signal input, 4mA, SR, SMT, works in stand-by mode
GPIO (23)				
1	GPIO0	R1	I/O	(1) GPIO, 2~16mA, SR, SMT (2) ASDATA4, ch9 and ch10 audio output
2	GPIO1	R2	I/O	(1) GPIO, 2~16mA, SR, SMT (2) ASDATA5, ch11 and ch12 audio output
3	GPIO2	R3	I/O	GPIO, 2~16mA, SR, SMT
4	GPIO3	R4	I/O	GPIO, 2~16mA, SR, SMT
5	GPIO4	T4	I/O	GPIO, 2~16mA, SR, SMT
6	GPIO5	U1	I/O	(1) GPIO, 2~16mA, SR, SMT (2) TXD of the 2nd RS232 port
7	GPIO6	U2	I/O	(1) GPIO, 2~16mA, SR, SMT (2) RXD of the 2nd RS232 port
8	GPIO7	V1	I/O	GPIO, 2~16mA, SR, SMT **-> Add function: 2nd digital audio LRCK output**
9	GPIO8	V2	I/O	GPIO, 2~16mA, SR, SMT **-> Add function: 2nd digital audio AOBCK output**
10	GPIO9	V3	I/O	GPIO, 2~16mA, SR, SMT **-> Add function: 2nd digital audio AOMCLK output**
11	GPIO10	V4	I/O	GPIO, 2~16mA, SR, SMT
12	GPIO11	W1	I/O	GPIO, 2~16mA, SR, SMT
13	GPIO12	W2	I/O	GPIO, 2~16mA, SR, SMT
14	GPIO13	W3	I/O	GPIO, 2~16mA, SR, SMT
15	GPIO14	W4	I/O	GPIO, 2~16mA, SR, SMT
16	GPIO15	Y1	I/O	GPIO, 2~16mA, SR, SMT
17	GPIO16	Y2	I/O	GPIO, 2~16mA, SR, SMT
18	GPIO17	Y3	I/O	GPIO, 2~16mA, SR, SMT
19	GPIO18	Y4	I/O	GPIO, 2~16mA, SR, SMT
20	GPIO19	D7	I/O	2mA, works in stand-by mode 1) GPIO (default, input in initial state) 2) Monitored pin
21	UP3_0	A7	I/O	2mA, works in stand-by mode 1) GPIO (default, input in initial state) 2) UP30

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Item	Symbol	Pin #	Type	Description
				3) Monitored pin
22	UP3_1	B7	I/O	2mA, works in stand-by mode 1) GPIO (default, input in initial state) 2) UP31 3) Monitored pin
23	UP3_5	C7	I/O	2mA, works in stand-by mode 1) GPIO (default, input in initial state) 2) UP35 3) Monitored pin
FCI Interface (3)				
1	FCIDAT	T3	I/O	2~16mA, SR, PU(optional), PD(optional) 1) GPIO (default, input in initial state) 2) SDIO in ms mode or DAT0 in SD mode
2	FCICLK	T1	O	2~16mA, SR 1) GPIO (default, input in initial state) 2) MSCLK in ms mode or SDCLK in SD mode
3	FCICMD	T2	I/O	2~16mA, SR, PU(optional), PD(optional) 1) GPIO (default, input in initial state) 2) BS in ms mode or CMD in SD mode
Dram Interface (60)				
1	DQ0	AB1	I/O	dram data bus bit 0
2	DQ1	AB2	I/O	dram data bus bit 1
3	DQ2	AB3	I/O	dram data bus bit 2
4	DQ3	AB4	I/O	dram data bus bit 3
5	DQ4	AC1	I/O	dram data bus bit 4
6	DQ5	AC2	I/O	dram data bus bit 5
7	DQ6	AC3	I/O	dram data bus bit 6
8	DQ7	AC4	I/O	dram data bus bit 7
9	DQ8	AF1	I/O	dram data bus bit 8
10	DQ9	AE2	I/O	dram data bus bit 9
11	DQ10	AF2	I/O	dram data bus bit 10
12	DQ11	AE3	I/O	dram data bus bit 11
13	DQ12	AF3	I/O	dram data bus bit 12
14	DQ13	AD4	I/O	dram data bus bit 13

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Item	Symbol	Pin #	Type	Description
15	DQ14	AE4	I/O	dram data bus bit 14
16	DQ15	AF4	I/O	dram data bus bit 15
17	DQ16	AC12	I/O	dram data bus bit 16
18	DQ17	AD12	I/O	dram data bus bit 17
19	DQ18	AE12	I/O	dram data bus bit 18
20	DQ19	AF12	I/O	dram data bus bit 19
21	DQ20	AC13	I/O	dram data bus bit 20
22	DQ21	AD13	I/O	dram data bus bit 21
23	DQ22	AE13	I/O	dram data bus bit 22
24	DQ23	AF13	I/O	dram data bus bit 23
25	DQ24	AD14	I/O	dram data bus bit 24
26	DQ25	AE15	I/O	dram data bus bit 25
27	DQ26	AF16	I/O	dram data bus bit 26
28	DQ27	AE16	I/O	dram data bus bit 27
29	DQ28	AD16	I/O	dram data bus bit 28
30	DQ29	AC16	I/O	dram data bus bit 29
31	DQ30	AF17	I/O	dram data bus bit 30
32	DQ31	AE17	I/O	dram data bus bit 31
33	RA0	AD8	O	dram address bus bit 0
34	RA1	AE8	O	dram address bus bit 1
35	RA2	AF8	O	dram address bus bit 2
36	RA3	AD9	O	dram address bus bit 3
37	RA4	AF11	O	dram address bus bit 4
38	RA5	AE11	O	dram address bus bit 5
39	RA6	AD11	O	dram address bus bit 6
40	RA7	AC11	O	dram address bus bit 7
41	RA8	AF10	O	dram address bus bit 8

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Item	Symbol	Pin #	Type	Description
42	RA9	AE10	O	dram address bus bit 9
43	RA10	AF7	O	dram address bus bit 10
44	RA11	AD10	O	dram address bus bit 11
45	RCS_	AF6	O	dram chip select
46	RAS_	AE6	O	dram row address strobe
47	CAS_	AF5	O	dram column address strobe
48	RWE_	AE5	O	dram write enable
49	CKE	AC10	O	dram clock enable
50	RCLKB	AF9		dram clock
51	RCLK	AE9		dram clock invert
52	DQM0	AD2		data mask 0
53	DQM1	AE14		data mask 1
54	BA0	AD7		bank address 0
55	BA1	AE7		bank address 1
56	RVREF	AD3		reference voltage
57	DQS0	AD1		data strobe 0
58	DQS1	AE1		data strobe 1
59	DQS2	AF14		data strobe 2
60	DQS3	AF15		data strobe 3
Digital Video Input (31)				
1	VI0	AF20	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[0]
2	VI1	AE20	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[1]
3	VI2	AD20	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[2]
4	VI3	AF21	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[3]

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Item	Symbol	Pin #	Type	Description
5	VI4	AE21	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[4]
6	VI5	AD21	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[5]
7	VI6	AC21	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[6]
8	VI7	AF22	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) R[7]
9	VI8	AE22	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[0]
10	VI9	AD22	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[1]
11	VI10	AF23	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[2]
12	VI11	AE23	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[3]
13	VI12	AD23	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[4]
14	VI13	AF24	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[5]
15	VI14	AE24	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[6]
16	VI15	AD24	IO	Multi-function, 2mA (1) GPIO (default, input in initial state) (2) G[7]
17	VI16	AF25	IO	Multi-function, 2mA (1) B[0] (2) GPIO
18	VI17	AF26	IO	Multi-function, 2mA (1) B[1] (2) GPIO

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Item	Symbol	Pin #	Type	Description
19	VI18	AE25	IO	Multi-function, 2mA (1) B[2] (2) GPIO
20	VI19	AE26	IO	Multi-function, 2mA (1) B[3] (2) GPIO
21	VI20	AD25	IO	Multi-function, 2mA (1) B[4] (2) GPIO
22	VI21	AD26	IO	Multi-function, 2mA (1) B[5] (2) GPIO
23	VI22	AC25	IO	Multi-function, 2mA (1) B[6] (2) GPIO
24	VI23	AC26	IO	Multi-function, 2mA (1) B[7] (2) GPIO
25	HSYNC_DVI	AD19		H sync, 2mA
26	VSYNC_DVI	AF19		V sync, 2mA
27	DE_DVI	AC19		Data enable, 2mA
28	VCLK_DVI	AE19		Video Clock input, 2mA
29	DE_SOG	AE18		1) GPIO (default, input in initial state) 2) SOG input from external AD
30	OUT_27MHZ	AD18		1) GPIO (default, input in initial state) 2) OSC clock output for external chip
31	CEN_DVI	AF18		1) GPIO (default, input in initial state) 2) Clock enable input from external SCALER
HDMI Interface(7)				
1	HDMIMCLK	AB26		1) GPIO (default, input in initial state) 2) MCLK for HDMI
2	HDMIBCLK	AB25		1) GPIO (default, input in initial state) 2) BCK for HDMI
3	HDMILRCK	AC24		1) GPIO (default, input in initial state) 2) LRCK for HDMI
4	HDMISD0	AA25		1) GPIO (default, input in initial state) 2) CH 1/2 data input for HDMI
5	HDMISD1	AA26		1) GPIO (default, input in initial state) 2) CH 3/4 data input for HDMI

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Item	Symbol	Pin #	Type	Description
6	HDMISD2	AA23		1) GPIO (default, input in initial state) 2) CH 5/6 data input for HDMI
7	HDMISD3	AA24		1) GPIO (default, input in initial state) 2) CH 7/8 data input for HDMI
CCIR Interface (9)				
1	CCIR_VCLK	W23		1) GPIO (default, input in initial state) 2) CCIR656 clock input from external TVD
2	CCIR_V0	Y26		1) GPIO (default, input in initial state) 2) CCIR656 data0 input from external TVD
3	CCIR_V1	Y25		1) GPIO (default, input in initial state) 2) CCIR656 data1 input from external TVD
4	CCIR_V2	Y24		1) GPIO (default, input in initial state) 2) CCIR656 data2 input from external TVD
5	CCIR_V3	Y23		1) GPIO (default, input in initial state) 2) CCIR656 data3 input from external TVD
6	CCIR_V4	W26		1) GPIO (default, input in initial state) 2) CCIR656 data4 input from external TVD
7	CCIR_V5	W25		1) GPIO (default, input in initial state) 2) CCIR656 data5 input from external TVD
8	CCIR_V6	W24		1) GPIO (default, input in initial state) 2) CCIR656 data6 input from external TVD
9	CCIR_V7	V24		1) GPIO (default, input in initial state) 2) CCIR656 data7 input from external TVD
TTL Interface (4)				
1	DE	C6	O	1) GPIO (default, input in initial state) 2) Data enable, 2mA
2	VSYNCO	B6	O	Vertical sync, 2mA
3	HSYNCO	A6	O	Horizontal sync, 2mA
4	VCLK	D6	O	Works in stand-by mode 1) GPIO (default, input in initial state) 2) Video output reference clock, 10mA
ANALOG (117)				
PLL Group (12)				
1	TP3	C23	I/O	Positive PLL group test pin
2	TN3	D22	I/O	Negative PLL group test pin
3	PLLVSS1	B23	GND	PLL group ground

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Item	Symbol	Pin #	Type	Description
4	PLLVDD1	C22	power	1.8v PLL group power
5	PLLVSS2	B22	GND	PLL group ground
6	PLLVDD2	C21	power	1.8v PLL group power
7	PLLVSS3	A23	GND	PLL group ground
8	PLLVDD3	B21	power	1.8v PLL group power
9	XTALVDD	A22	power	1.8v XTAL power
10	XTALO	A20	I/O	XTAL I/O clock
11	XTALI	A21	I/O	XTAL I/O clock
12	XTALVSS	A19	GND	XTAL ground
Servo ADC (8)				
1	ADCVSS	D21	GND	Servo ADC ground
2	ADIN4	D20	I	1) Servo ADC input 2) GPIO
3	ADIN3	C20	I	1) Servo ADC input 2) GPIO
4	ADIN2	B20	I	1) Servo ADC input 2) GPIO
5	ADIN1	C19	I	1) Servo ADC input 2) GPIO
6	ADIN0	B19	I	1) Servo ADC input 2) GPIO
7	ADCVDD	D18	Power	Servo ADC power
8	PWM2VREF	C18	I/O	Servo ADC reference pin
VDAC output (12)				
1	SVM	B18	O	SVM
2	B	A18	O	Video DAC output
3	DACVSSA	D19	GND	Video DAC ground
4	G	A17	O	Video DAC output
5	DACVDDA	C16	power	1.8v Video DAC power (or 2.0v)
6	DACVSSB	C17	GND	Video DAC ground
7	DACVDDB	D16	power	1.8v Video DAC power (or 2.0v)

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Item	Symbol	Pin #	Type	Description
8	R	B17	O	Video DAC output
9	DACVSSC	D17	GND	Video DAC ground
10	FS	A16	I/O	Full scale current generation pin
11	DACVREF	B16	I/O	Reference voltage pin
12	DACVDDC	C15	power	1.8v Video DAC power (or 2.0v)
VPLL (5)				
1	TP4	A15	I/O	Positive VPLL test pin
2	TN4	B15	I/O	Negative VPLL test pin
3	VPLLVDD1	D15	power	1.8v VPLL power
4	VPLLVSS	D14	GND	1) VPLL ground
5	VPLLVDD2	A13	power	3.3v VPLL power
LVDS (26)				
1	LVDDA	D13	power	3.3v LVDS power
2	A7P	C12	O	LVDS Tx positive output of 4th pair of second port
3	A7N	D12	O	LVDS Tx negative output of 4th pair of second port
4	CK2P	C11	O	LVDS Tx positive output of clock pair of second port
5	CK2N	D11	O	LVDS Tx negative output of clock pair of second port
6	LVSSA	C14	GND	LVDS ground
7	A6P	C10	O	LVDS Tx positive output of 3rd pair of second port
8	A6N	D10	O	LVDS Tx negative output of 3rd pair of second port
9	A5P	C9	O	LVDS Tx positive output of 2nd pair of second port
10	A5N	D9	O	LVDS Tx negative output of 2nd pair of second port
11	LVDDB	C13	power	3.3v LVDS power
12	A4P	C8	O	1) LVDS Tx positive output of 1st pair of second port 2) LVDS Tx positive output of 5th pair of first port (10bit)
13	A4N	D8	O	1) LVDS Tx negative output of 1st pair of second port 2) LVDS Tx negative output of 5th pair of first port (10bit)
14	A3P	A12	O	LVDS Tx positive output of 4th pair of first port
15	A3N	B12	O	LVDS Tx negative output of 4th pair of first port
16	LVSSB	B14	GND	LVDS ground

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Item	Symbol	Pin #	Type	Description
17	CK1P	A11	O	LVDS Tx positive output of clock pair of first port
18	CK1N	B11	O	LVDS Tx negative output of clock pair of first port
19	A2P	A10	O	LVDS Tx positive output of 3rd pair of first port
20	A2N	B10	O	LVDS Tx negative output of 3rd pair of first port
21	LVDDC	B13	power	3.3v LVDS power
22	A1P	A9	O	LVDS Tx positive output of 2nd pair of first port
23	A1N	B9	O	LVDS Tx negative output of 2nd pair of first port
24	A0P	A8	O	LVDS Tx positive output of 1st pair of first port
25	A0N	B8	O	LVDS Tx negative output of 1st pair of first port
26	LVSSC	A14	GND	LVDS ground
RGB VFE (29)				
1	HSYNC	V26	I	VFE Horizontal sync input
2	VSYNC	V25	I	VFE Vertical sync input
3	AVSS_VFE1	N24	GND	RGB Video front end ground
4	BP	U25	I	Blue+ differential input **(input range: 0.5V~1.5V)**
5	BN	U26	I	Blue- differential input
6	SOG	T24	I	Sync on Green
7	GP	T25	I	Green+ differential input **(input range: 0.5V~1.5V)**
8	GN	T26	I	Green- negative differential input
9	RP	R25	I	Red+ differential input **(input range: 0.5V~1.5V)**
10	RN	R26	I	Red- differential input
11	AVDD_VFE1	R23	Power	1.8v RGB video front end power
12	TN1	R24	I/O	negative RGB video front end test pin
13	TP1	P23	I/O	positive RGB video front end test pin
14	AVSS_VAD1	M24	GND	RGB ADC ground
15	SOY0	P24	I	Sync on Y0
16	Y0P	P25	I	Component Y0+ differential input **(input range: 0.5V~1.5V)**
17	Y0N	P26	I	Component Y0- differential input

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Item	Symbol	Pin #	Type	Description
18	PB0P	N25	I	Component Pb0+ differential input **(input range: 0.5V~1.5V)**
19	PB0N	N26	I	Component Pb0- differential input
20	PR0P	M25	I	Component Pr0+ differential input **(input range: 0.5V~1.5V)**
21	PR0N	M26	I	Component Pr0- differential input
22	SOY1	L24	I	Sync on Y1
23	Y1P	L25	I	Component Y1+ differential input **(input range: 0.5V~1.5V)**
24	Y1N	L26	I	Component Y1- differential input
25	PB1P	K25	I	Component Pb1+ differential input **(input range: 0.5V~1.5V)**
26	PB1N	K26	I	Component Pb1- differential input
27	PR1P	J25	I	Component Pr1+ differential input **(input range: 0.5V~1.5V)**
28	PR1N	J26	I	Component Pr1- differential input
29	AVDD_VAD1	L23	power	1.8v RGB ADC power
CVBS VFE (14)				
1	AV7	G26	I	AV7 input **(input range: 0.5V~1.5V)**
2	AV6	G25	I	AV6 input **(input range: 0.5V~1.5V)**
3	AV5	F26	I	AV5 input **(input range: 0.5V~1.5V)**
4	AV4	F25	I	AV4 input **(input range: 0.5V~1.5V)**
5	AVSS_VFE0	H23	GND	CVBE video front end ground
6	AVDD_VFE0	J23	power	3.3v CVBS video front end power
7	AV3	E26	I	AV 3 input **(input range: 0.5V~1.5V)**
8	AV2	E25	I	AV 2 input **(input range: 0.5V~1.5V)**
9	AV1	D25	I	AV 1 input **(input range: 0.5V~1.5V)**
10	AV0	D26	I	AV0 input **(input range: 0.5V~1.5V)**
11	AVSS_VAD0	G23	GND	CVBE ADC ground
12	REFP	F24	I/O	Positive CVBS ADC Voltage Reference ➔ **The function changed to SY2**
13	REFN	G24	I/O	Negative CVBS ADC Voltage Reference ➔ **The function changed to SC2**
14	AVDD_VAD0	F23	power	3.3v CVBS ADC power

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Item	Symbol	Pin #	Type	Description
Audio FE (6)				
1	AADCVDD	E24	Power	3.3v Audio front end power
2	MPX1	B26	I	Audio Frequency input0
3	MPX2	C26	I	Audio Frequency input1
4	AADCVSS	D24	GND	Audio front end ground
5	TN2	C25	I/O	negative Audio ADC reference pin
6	TP2	B25	I/O	1) positive Audio ADC reference pin 2) bypass CVBS video output pin
Audio DAC (6)				
1	ADACVDD	C24	Power	3.3v Audio front end power
2	ACENT	B24	I/O	1) Audio DAC output 2) I2S , ASDATA2 3) GPIO
3	AVICM	A24		Audio DAC input common voltage
4	AL	A25	I/O	1) Audio DAC output 2) I2S , ASDATA0 3) GPIO
5	AR	A26	I/O	1) Audio DAC output 2) I2S , ASDATA1 3) GPIO
6	ADACVSS	D23	GND	Video ADC Voltage Reference N0

4.2 NOTICES ABOUT GPIOS:

There are considerably various I/O pins provided by MT8206EG, but some of them are shared by other function, here we notice some conditions when you use.

■ When GPIO have to active in power saving mode

1. GPIOs in Stand by mode means UP30, UP31, UP34 and UP35 can be used.

2. Servo ADs can be also used when power saving mode

3. GPIOs which are sharing with servo AD can be also used when power saving mode.

■GPIO use DE pin

DE pin is also use for trapping when VGA download have to use. So DE pin should be used carefully.

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When you use DE as GPIO, it is highly recommended that DE can not pull high.

4.3 BLOCK DIAGRAM

(see Next Page)

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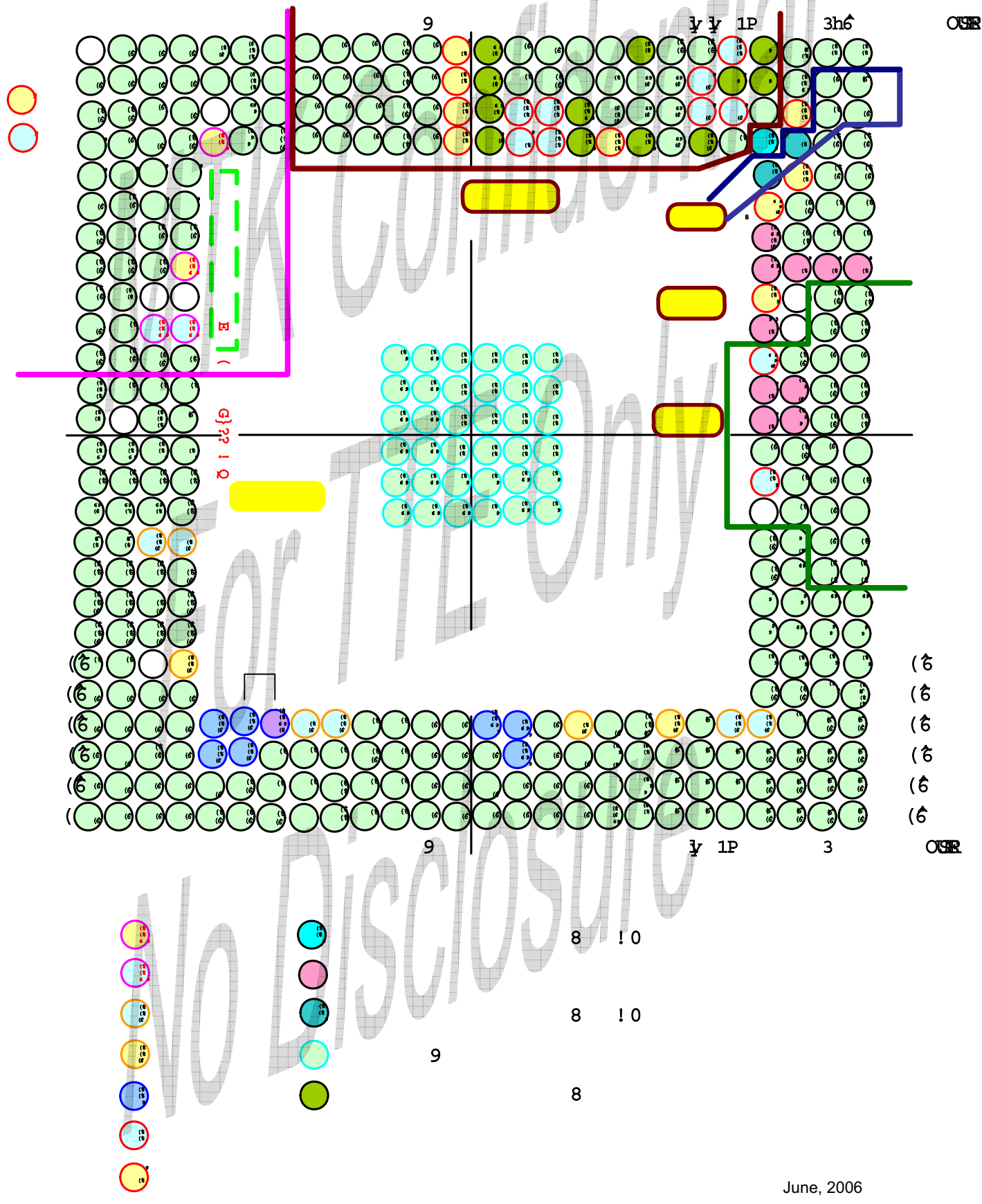

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5. Video Configuration

■CVBS/SV Input Switch, S-first Function

We have 8 CVBS/SV input pins for arbitrary order of customers' demand. Because there is only 1 TV decoder in MT8206G, there is only one set (CVBS or SV) through the input pins. However, we can support S-first function without any external circuits.

■ CVBS Bypass Output

The pin "TP2 " can only output the CVBS signal of the chosen input but SV input.

■ INTERNAL VIDEO SWITCH

		Main Path			
	Source	CVBS / S video (Total 8 input pins)	YPbPr	RGB	Digital port (DVI / HDMI / CCIR 656 / CCIR601)
PIP path	CVBS / S video (Total 8 input pins)				
	YPbPr			X	
	RGB		X		
	Digital port (DVI / HDMI / CCIR656 / CCIR601)				

- Above table is the PIP/POP table if we do not use any extern input switch.
- If video goes through DVI port, then PIP/POP case will not be limited to AD numbers.

■ Digital Input Pin Swap Selection

For layout conveniently, 8206 can flexibly swap input pin:

1. If VI0~VI23 configure as 24-bits R/G/B or CB/Y/CR mode -->
   8206 can do B/R or CB/CR bus swap or MSB/LSB swap.

2. If VI8~VI23 configure as 16-bits CBCR/Y mode -->
   8206 can do B/R or CB/CR bus swap or MSB/LSB swap

3. If VI16~VI23 or VI8~VI15 configure as 8-bits mode -->

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8206 can do VI16~VI23/VI16~VI23 two bus swap or MSB/LSB swap.

4. We have second port dedicated for 8-bit ITU656 digital video format.

■ Clock Spread Spectrum

1. Up-down 2 directions spread spectrum
2. SS frequency: 10Hz~100Hz
3. SS percentage: 0%~5%, 8 bits resolution.
4. Output clock and DRAM clock all available.

6. Audio Configuration

■ Digital Audio Input Pin Configuration

** Note that there are different input pin configurations for MT8206G on master and slave clock modes.*

Description	Master Mode (MT8206G is Master clock mode)	Slave Mode (MT8206G is Slave clock mode)
Data input	LIN	HDMISD0
Master clock	AOMCLK	HDMIMCLK
L/R clock	AOLRCK	HDMILRLK
Bit clock	AOBCK	HDMIBCLK
Extension Data input 1	HDMISD1	HDMISD1
Extension Data input 2	HDMISD2	HDMISD2
Extension Data input 3	HDMISD3	HDMISD3

■ Digital Audio Output Mapping Rule

Item	Symbol	Pin #	IO	Description: Output Type
1	AOSDATA0		O	Audio out data 0: Speaker / AV_LR / Bypass Out
2	AOSDATA1		O	Audio out data 1: Speaker / AV_LR / Headphone
3	AOSDATA2		O	Audio out data 2: Center(L) / Subwoofer(R)

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Item	Symbol	Pin #	IO	Description: Output Type
4	AOSDATA3		O	Audio out data 3: Speaker / AV_LR / Bypass Out / 5.1ch_LS_RS
5	AOSDATA4		I/O	Audio out data 4: 7.1ch_LC_RC
6	AOSDATA5		I/O	Audio out data 5: Headphone / Bypass Out

■ Analog Audio Output Mapping Rule

Item	Symbol	Pin #	IO	Description: Output Type
1	AL		O	Left of AOSDATA0
2	AR		O	Right of AOSDATA0
3	CENT		O	Left or Right of AOSDATA2

7. Power Saving Mode

Only DVDD33A, DVDD18A, XTALVDD, and PLLVDD1/2/3 power supplied. At this mode, there are 7 **GPIO pins(UP3_0, UP3_1, UP3_4, UP3_5, GPIO19, IOA20, IOA21), IR, microprocessor and 5 Servo ADC pins** (also can be GPIO) working normally. The MT8206G only need **16mA** at this mode, and whole system is approximate **0.8W** according to internal measurement.

If you want to support power saving mode,please also remomber to use proper GPIOs which can be active when powe saving mode.(Please see 4.2 NOTICES about GPIOs)

p.s.System is based on PCB m1v2 + mt8206B E2 IC and Ver1845 F/W,different system may result in a bit viriation in power comsuption

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8. Flash Rom Support List

MT8206G Flash ROM Support Test Report:

Item	Brand	IC Number	Speed	Size	Voltage	Package	Result
1	MXIC	29LV800ABTC-70	70ns	8Mb	3.3V	TSOP48	Pass
2	MXIC	29LV800ATTC-70	70ns	8Mb	3.3V	TSOP48	Pass
3	MXIC	29LV800ATTI-70	70ns	8Mb	3.3V	TSOP48	Pass
4	MXIC	29LV800BTC-55	55ns	8Mb	3.3V	TSOP48	Pass
5	MXIC	29LV800TTC-70	70ns	8Mb	3.3V	TSOP48	Pass
6	MXIC	29LV160BBTC-70	70ns	16Mb	3.3V	TSOP48	Pass
7	MXIC	29LV160BTTC-70	70ns	16Mb	3.3V	TSOP48	Pass
8	MXIC	26LV160BTC-70	70ns	16Mb	3.3V	TSOP48	Pass
9	Fujitsu	29LV800BA-70PFTN	70ns	8Mb	3.3V	TSOP48	Pass
10	Fujitsu	29LV800TA-70PFTN	70ns	8Mb	3.3V	TSOP48	Pass
11	Fujitsu	29LV800TA-90PFTN	90ns	8Mb	3.3V	TSOP48	Pass
12	Fujitsu	29LV160BE-70PFTN	70ns	16Mb	3.3V	TSOP48	Pass
13	Fujitsu	29LV160TE-70PFTN	70ns	16Mb	3.3V	TSOP48	Pass
14	ST	M29W800AT-90N1	90ns	8Mb	3.3V	TSOP48	Pass
15	ST	M29W800AT-90N6	90ns	8Mb	3.3V	TSOP48	Pass
16	ST	M29W800DT-70N1	70ns	8Mb	3.3V	TSOP48	Pass
17	ST	M29W160EB-70N6	70ns	16Mb	3.3V	TSOP48	Pass
18	ST	M29W160ET-70N6	70ns	16Mb	3.3V	TSOP48	Pass
20	SST	39VF088-70-4C-EK	70ns	8Mb	3.3V	TSOP48	Pass
23	AMD	AM29LV160DT-70EC	70ns	16Mb	3.3V	TSOP48	Pass
24	ATMEL	AT49BV162A-70TI	70ns	16Mb	3.3V	TSOP48	Pass

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■ DDR / SDR Interface

The DDR / SDR interface of MT8206G can support varied kinds of DRAM. The ROW bit number is no more than 12; the column number is 8, 9, or 10bit; and the bank bit is 1/2 bits (2 or 4 banks).

The following is the DRAM support list:

Size	DRAM	FW/PCB
128MX2	DDR 8MX16X2	Support
128M	DDR 8MX16X1	Support
128M	DDR 4MX32X1	Support but not ready
128MX2	SDR 8MX16X2	Support
128M	SDR 8MX16X1	Support
128M	SDR 4MX32X1	Support but not ready
64MX2	SDR 4MX16X2	Support
64M	SDR 4MX16X1	Support
64M	SDR 2MX32X1	Support but not ready
16MX2	SDR 1MX16X2	Support
16M	SDR 1MX16X1	Support

The compatible DRAM types are –5 or –6, and the maximum speed is 175MHz (for ESMT –5 and MOSEL –5).

9. Layout Guide

9.1 PCB Layer

Board Stack up

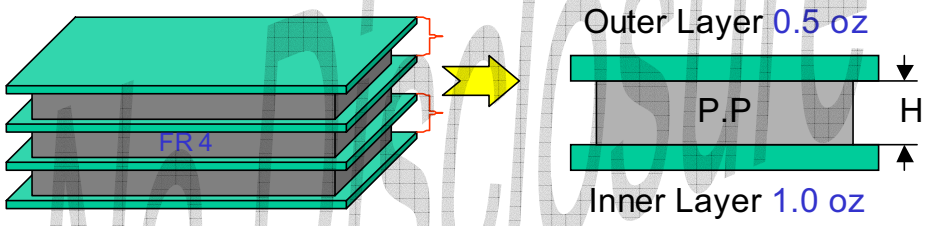

Fig. 1-1 PCB Stackup – 4 Layers

The outer layers of the PCB were designated to the mainly signal routings by default, and normally were chosen to have the 0.5 oz Cu foil with plated 0.5 oz copper, and the inner layers was designated to be 1.0 oz at the PCB manufacturing step.

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Refer to the Fig. 1-1 above. The dielectrics between conductors were as the isolators, which were used to separate the conductors. By the microstrip line architecture of system memory signals, the target impedance was desired to have 55 +/- 10%. Please refer to the table 1 below for your PCB design and recommendation. The default design was 6-mil trace width with 4.5 mil high dielectrics.

Table 1-1. 4 Layer PCB Stack up Configurations

		PCB Parameter		
		H (mil)	Target Impedance ( )	Tolerance
Trace Width (mil)	5	4	55	10 %
	6	**4.5**	55	10 %
	8	7	55	10 %

9.2 DDR/SDR DRAM LAYOUT GUIDE

System DDR Memory Solution Space

Refer to the diagrams below to the topologies of the DDR signals, and the actual dimension specifications were listed of the tables.

- **DDR Signal Topology – 1**

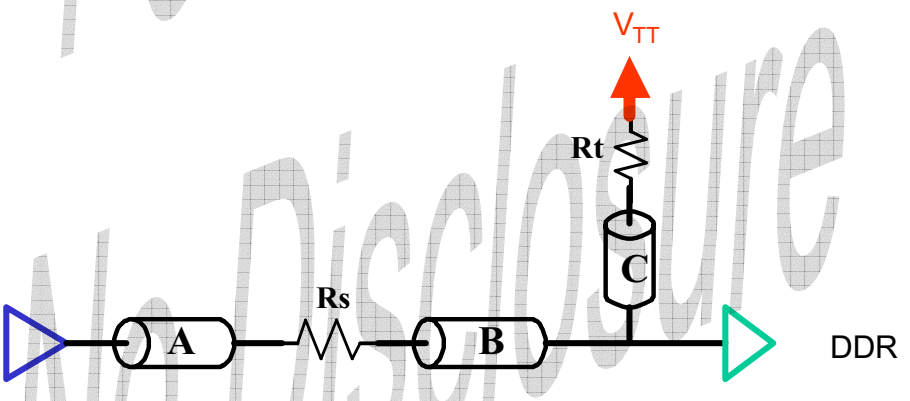

Fig. 1-2 Signal Topology -1

Table 1-2. Signal Topology –1

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Signal			DQ	DQS
Trace (mil)		Width	6	6
		Spacing	2*W or Above	2*W or Above
Trace Length (inch)	A	Min.	0.2	0.2
		Max.	2	2
	B	Min.	0.2	0.2
		Max.	1.2	1.2
	C	Min.	0.1	0.1
		Max.	0.5	0.5
	A+B	Min.	0.4	0.4
		Max.	3	3
Rs ( )			47	47
Rt ( )			75	75

Note

1. Keep the difference of the trace length of the same data signal groups within about 200 mils as possible.
2. Keep the difference of the data signal groups within 500 mils as possible (The longest signal trace to the shortest signal trace).
3. Placing the damping resistor close to the controller IC
4. Placing the termination resistor close to the memory as possible.
5. Put an integrated plane as the return path to the signals beneath the data signals.
6. When the signal needs to change layers and the reference paths beneath the signal are not continued. Placing the bypass capacitors nearing to the vias where are the points to change layers and connecting the capacitors to the different reference paths.

➢ DDR Signal Topology – 2

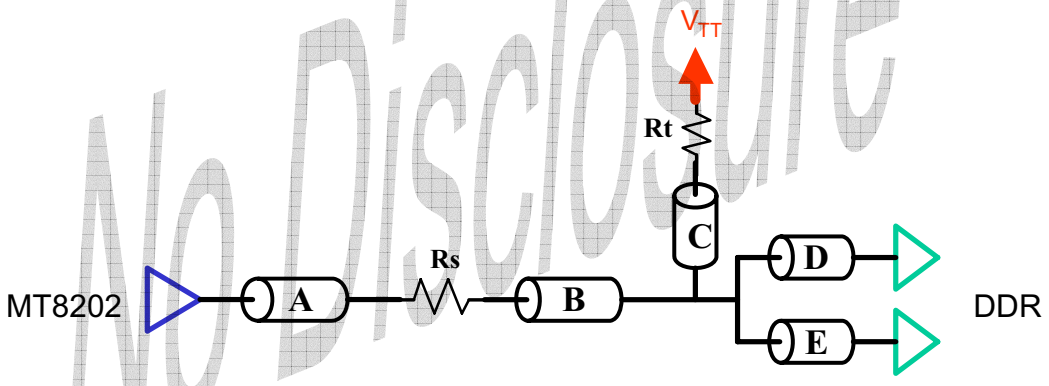

Fig. 1-3 Signal Topology -2

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Table 1-3. Signal Topology –2

Signal			DQM	RA / BA	CS# CAS# RAS# WE#
Trace (mil)		Width	6	6	6
		Spacing	2*W or Above	2*W or Above	2*W or Above
Trace Length (inch)	A	Min.	0.2	0.2	0.2
		Max.	1	1.2	1.2
	B	Min.	0.2	0.2	0.2
		Max.	1	1	1
	C	Min.	0.1	0.1	0.1
		Max.	0.5	0.5	0.5
	D E	Min.	0.2	0.2	0.2
		Max.	1.4	1.2	1.2
	A+B+D(or E)	Min.	0.6	0.6	0.6
		Max.	2.8	3.2	3.2
Rs ( )			22	22	22
Rt ( )			75	75	75

Note

1. Keep the difference of the branches' length D E of the dual loads signal within 100 mils.
2. Put the termination resistor close to the crossing point of the branches.
3. Reversing more spacing to the periodic signal as clock if signal was critical and there weren't the guard traces.
4. Put an integrated plane as the return path to the signals beneath the address command signals.
5. When the signal need to change layers, and the reference paths beneath the signal are not continued, placing the bypass capacitors nearing to the vias where are the points to change layers and connecting the capacitors to the different reference paths.
6. If the DQM Signal used as the dual load topology shown above of Fig. 1-3. Treating the DQM signal topology as the table 1-3 of signal topology – 2.

➢ DDR Signal Topology – 3

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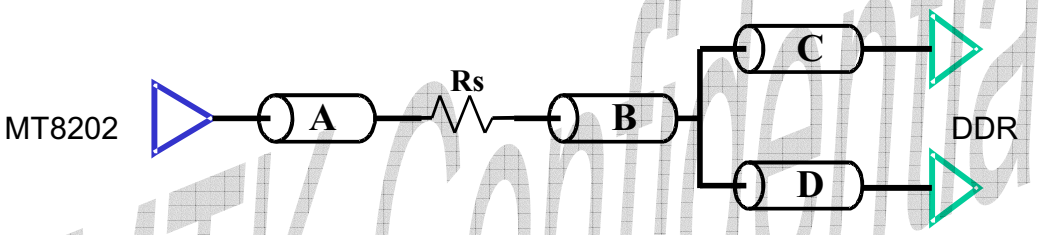

Fig. 1-4 Signal Topology3

Table 1-4. Signal Topology –3

Signal			CLK CLK#	CKE
Trace (mil)		Width	6	6
		Spacing	20	2*W or Above
Trace Length (inch)	A	Min.	0.2	0.2
		Max.	1.2	1.2
	B	Min.	0.2	0.2
		Max.	1	1
	C D	Min.	0.2	0.2
		Max.	1.2	1.2
	A+B+C(or D)	Min.	0.6	0.6
		Max.	2.6	3.2
Rs ( )			22	22

Note

1. The length difference of the C D shall be within 200mils.
2. The trace length difference of CLK CLK# shall be as short as possible.
3. Keep the trace difference between CLK pair to DQS signals as small as possible.
4. Keep the trace difference between CLK pair to RA / Command signals as small as possible.

System SDR Memory Solution Space

Refer to the diagrams below to the topologies of the SDR signals, and the actual dimension specifications were listed of the tables. By the experiments, the target impedance of the SDR signal was designed to be 55 + - 10 , and which was same as the DDR signals illustrated above. Refer to the Fig. 1-1 and table. 1-1 for the board stackup.

➢ SDR Signal Topology

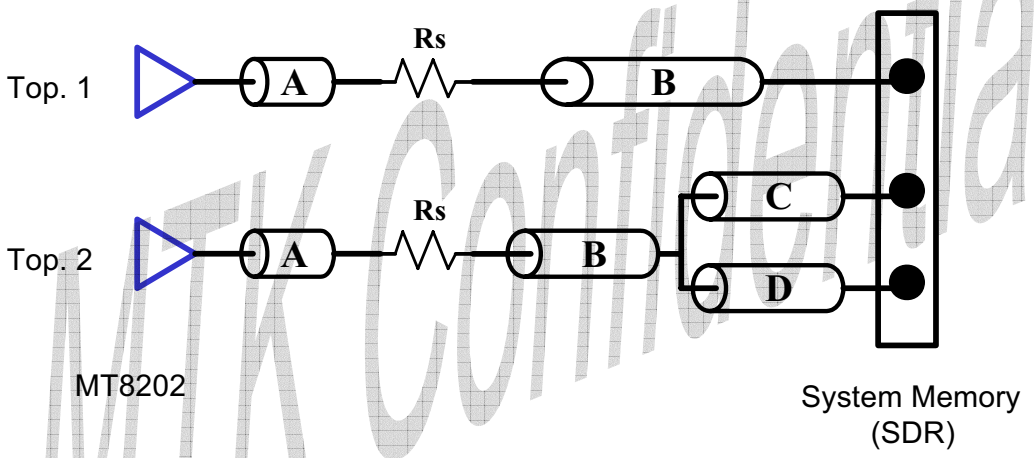

Fig. 1-4 Signal Topologies

Table 1-5. Signal Topology – SDR

Signal		DQ		CLK		DQM		RA/Command	
		Top. 1		Top. 2		Top. 2		Top. 2	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Trace Length (Inch)	A	0.2	1.3	0.2	1	0.2	1.6	0.2	1
	B	0.2	2.4	0.2	1	0.2	1	0.2	1
	C			0.2	1.6	0.2	1.6	0.2	1.6
	D			0.2	1.6	0.2	1.6	0.2	1.6
Rs ( )		47		22		22		22	
A+B+C (D)		0.4	2.7	1.2	3.2	1	3.2	0.6	3

Note

1. Keep the length of the branches as the same length (C = D), or within 0.2 inches as possible.
2. Keep the maximum difference of the signal length within 300mil of the same group to meet the minimum timing skew requirement.
3. It was suggested to keep the spacing between the nearby signals above 2 times of the trace width as possible.

9.3. LVDS Signal PCB Layout Guideline

For the other applications of the high-speed signal PCB design, below illustrated the topologies and constraints of the LVDS or other differential signals that were achieved to the electrical requirements. Also refer to the form to the detail recommendations.

Multi-Layer PCB Design

By the default multi-layers PCB architecture, the inner layers were assigned to be the

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reference plane to the signals. For the signal integrity issues, the integrate plane would held to hold a good signal qualities when signal were proceeding on the signal traces. Refer to the Fig. 2-1 Fig. 2-2 below shown the stack up and the topology of the differential signals of the 4-layer PCB where the signals were routed of the outer layers.

- **Signals without Guard Traces**

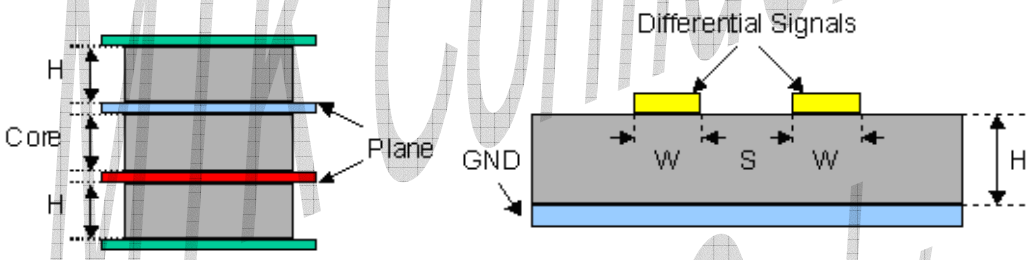

Fig. 2-1 LVDS Signal Topology – 4 Layers

Table 2-1.

Variable	Nominal (mil)	Tolerance	Min. (mil)	Max. (mil)
Trace High (H)	4.5 (2116)			
Trace Width (W)	5	+ / - 1 mil	4	6
Spacing (S)	8 (mil)	+ / - 1 mil	9	7
Single Ended Trace Impedance	56		61.6	52.6
Differential Trace Impedance	98		109	89.9
Reference Plane	Ground	Ground	Ground	Ground

- **Signals with Guard Traces**

The other application was used the coplanar ground copper and surrounded the signals to achieve the noise shielding purpose. Fig. 2-2 below shows the signal topology.

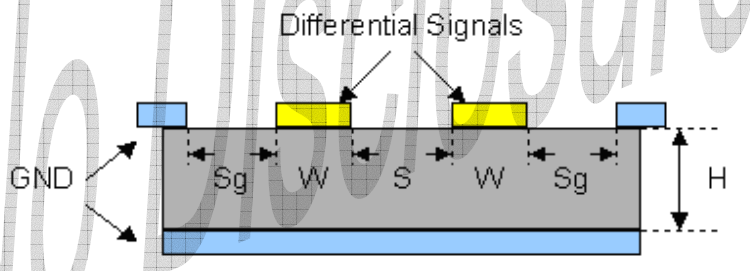

Fig. 2-2 Differential Signal with Guard Trace

Table 2-2.

Variable	Nominal (mil)	Tolerance	Min. (mil)	Max. (mil)
Trace High (H)	4.5 (2116)			
Trace Width (W)	5	+ / - 1 mil	4	6
Spacing (S)	8 (mil)	+ / - 1 mil	9	7
Spacing to GND(Sg)	8 (mil)	+ / - 1 mil	9	7
Single Ended Trace Impedance	55		60	50.5
Differential Trace Impedance	97		107	87
Reference Plane	Ground	Ground	Ground	Ground

Note:
- Keeping the spacing to the other signals as far as possible.
- Keeping the spacing to different ground planes (Sp) more than 30 mils as possible as the Fig. 2-3.

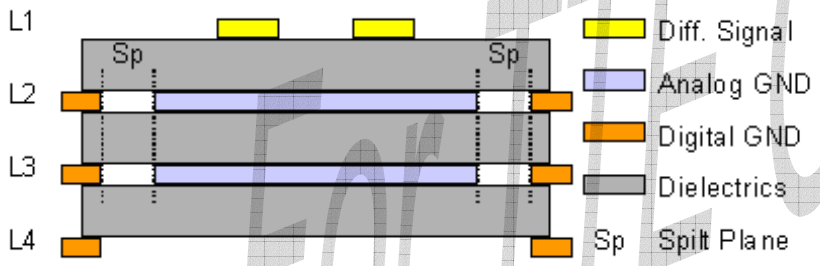

Fig. 2-3 Cross-Section of Plane Designated

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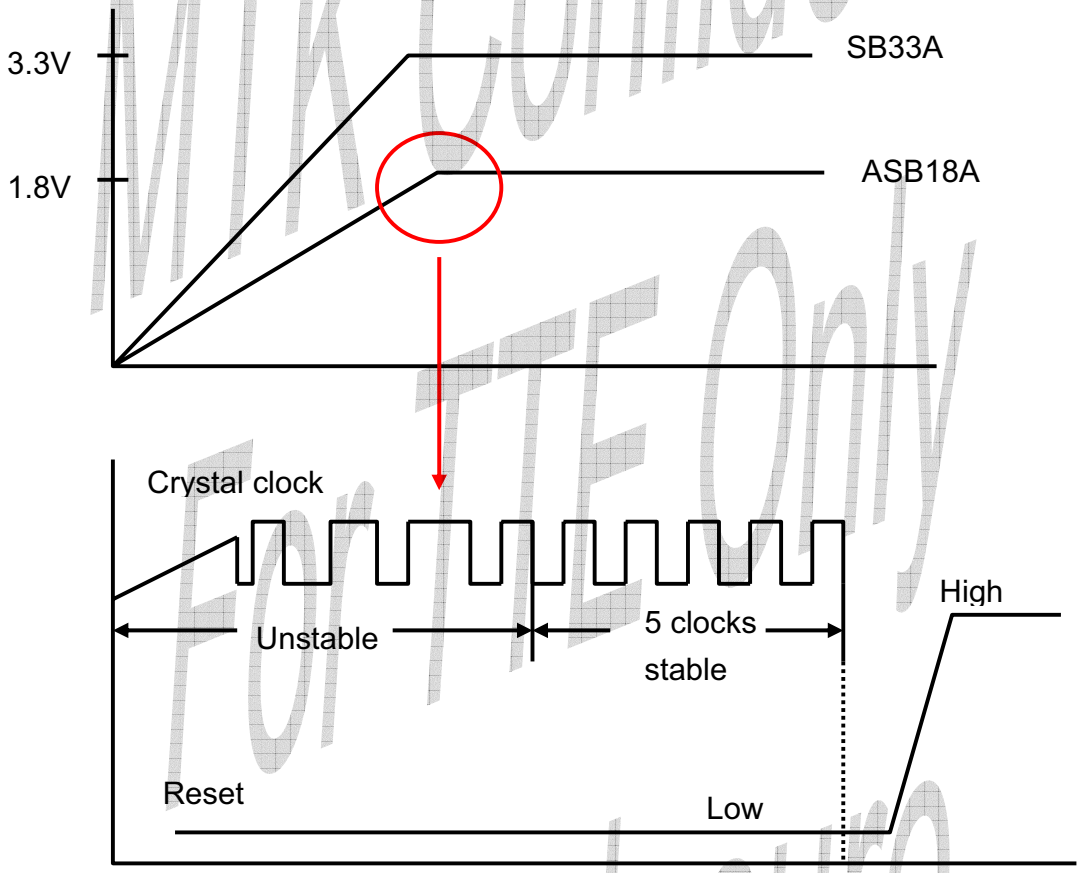
10. IC AC/DC Specification and Timing Chart

10.1 Reset Timing Chart and Power Sequence

The Reset pin works is active low mode, and we have to keep the reset rising edge after crystal oscillating stable at least 5 clocks.



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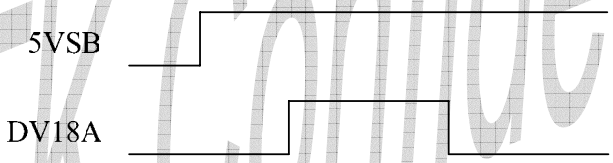
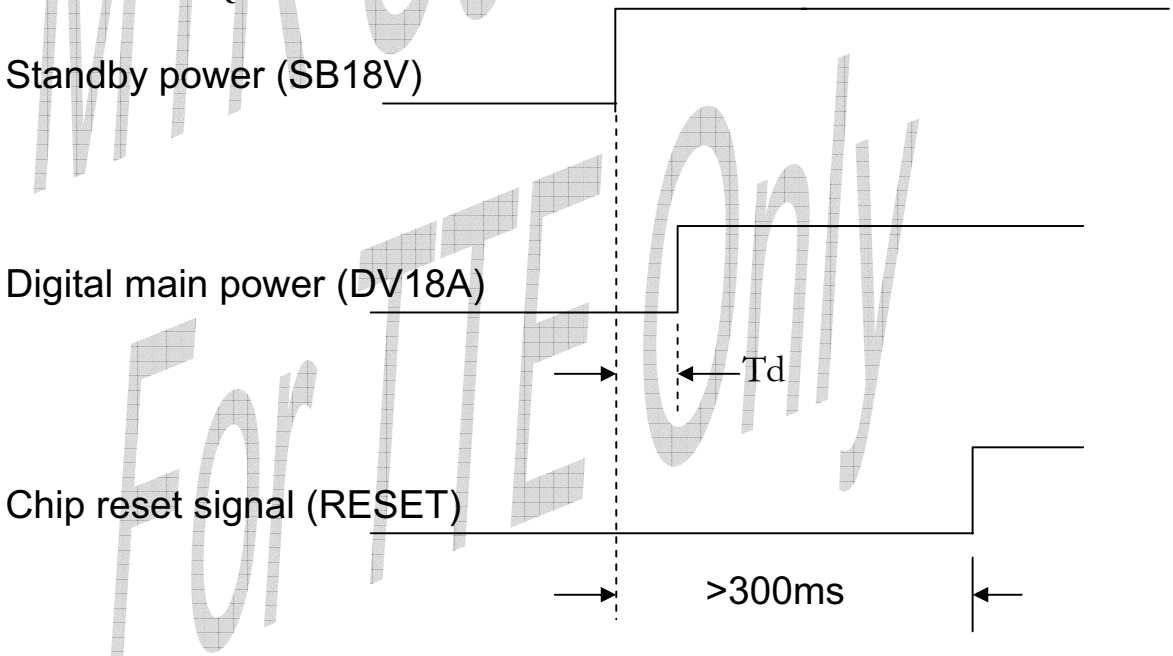
REQUIRED POWER ON SEQUENCE-1

The following chart shows Power-On sequence of 82-series IC's. Both 5VSB and DV18A must be supplied when chip is powered on. DV18A could not be off since booted-up and only turned off by firmware after initialization done. The minimum duration to keep DV18A alive depends on how firmware initiates chip.



REQUIRED POWER ON SEQUENCE-2



Note 1 : Td < 20ms, this will dependent on LDO type and C value on DV18A

Note 2 : this timing is safe to power

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10.2 DC CHARACTERISTICS MEASUREMENT VALUE

■ Absolute Maximum Ratings

SYMBOL	PARAMETER	RATING	UNITS
VDD18	1.8V Power Supply	-0.3~2.0	V
VDD2	2.5V Power Supply	-0.3~2.75	V
VDD3	3.3V Power Supply	-0.3~3.6	V
VIN3	Input Voltage of 3.3V I/O with 5V Tolerance	-0.3~5.25	V
VOUT3	Output Voltage	-0.3 ~ VDD3+0.3	V
T_a	Ambient Temperature	0 to 70	°C

■ Test Conditions

SYMBOL	PARAMETER	#1	#2	#3	#4	#5	UNITS
VDD18	1.8V Power Supply	1.6~2.0	1.6~2.0	1.6~2.0	1.6~2.0	1.6~2.0	V
VDD2	2.5V Power Supply	2.25~2.75	2.25~2.75	2.25~2.75	2.25~2.75	2.25~2.75	V
VDD3	3.3V Power Supply	3.0~3.6	3.0~3.6	3.0~3.6	3.0~3.6	3.0~3.6	V
VIN3	Input Voltage of 3.3V I/O with 5V Tolerance	0~5.25	0~5.25	0~5.25	0~5.25	0~5.25	V
Topr	Operation Temperature	25	25	25	25	25	°C

■ General DC Characteristic (Not for DDR Pins)

SYMBOL	PARAMETER	CONDITIONS	#1	#2	#3	#4	#5	UNITS
IIL	Input low current	No pull-up or down	≤500	≤500	≤500	≤500	≤500	nA
IIH	Input high current	No pull-up or down	≤500	≤500	≤500	≤500	≤500	nA
IOZ	Tri-state leakage current		≤1	≤1	≤1	≤1	≤1	uA
V_{IL}	Input Low Voltage		1.12	1.14	1.14	1.15	1.16	V
V_{IH}	Input High Voltage		1.68	1.69	1.76	1.76	1.74	V
V_{OL}	Output Low Voltage	$\|I_{OL}\|$ = 2mA	0.25	0.26	0.24	0.25	0.26	V
V_{OH}	Output High Voltage	$\|I_{OH}\|$ = 2mA	3.12	3.13	3.13	3.14	3.11	V

■ DC characteristics for DDR Pins

SYMBOL	PARAMETER	CONDITIONS	#1	#2	#3	#4	#5	UNITS
V_{IL}	Input Lower Voltage		1.13	1.12	1.12	1.12	1.13	V
V_{IH}	Input High Voltage		1.30	1.30	1.30	1.30	1.31	V
V_{OL}	Output Low Voltage	$\|I_{OL}\|$ = 2mA	0.24	0.26	0.28	0.24	0.24	V
V_{OH}	Output High Voltage	$\|I_{OH}\|$ = 2mA	2.21	2.19	2.18	2.23	2.21	V

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10.3 ADC CHARACTERISTICS

■ TV high resolution Video ADC Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Units
VIDEO ADC CHARACTERISTICS						
ENOB	Effective number of bits	Conversion Rate 54MHz	8.5	8.8		Bits
SNR	Signal to noise ratio		52	55		dB
DNL	Differential nonlinearity			0.7	0.8	LSB
INL	Integral nonlinearity			2.0	2.5	LSB
VIN	Input voltage range			2		Vpp
VCM	Input common mode voltage			1.5		V

■ HDTV high frequency Video ADC Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Units
VIDEO ADC CHARACTERISTICS						
ENOB	Effective number of bits	Conversion Rate 208MHz	6.4	6.6		Bits
SNR	Signal to noise ratio		42	45		dB
DNL	Differential nonlinearity			0.6	0.8	LSB
INL	Integral nonlinearity			1.0	1.3	LSB
VIN	Input voltage range			1		Vpp
VCM	Input common mode voltage			0.75		V

■ Audio ADC Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Units
AUDIO ADC CHARACTERISTICS						
ENOB	Effective number of bits	Conversion Rate 27MHz	8.5	8.8		Bits
SNR	Signal to noise ratio		52	55		dB
DNL	Differential nonlinearity			0.7	0.8	LSB
INL	Integral nonlinearity			2.0	2.5	LSB
VIN	Input voltage range			2		Vpp

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VCM	Input common mode voltage			1.5		V

10.4 LVDS Electrical Specifications

Symbol	Parameter	Conditions	Min	Typ	Max	Units
LVDS DRIVER DC CHARACTERISTICS						
Vod	Differential Output Voltage	RL=100	200	350	400	mV
vod	Change in Vod between Complimentary Output States			25		mV
Vos	Output Common Mode Voltage		1.24	1.25	1.27	V
Vos	Change in Vos between Complimentary Output States				50	mV
Ios	Output Short Circuit Current	Vout=0V, RL=100		3	4	mA
Ioz	Output TRI-STATE Current	PD=1,Vout=0V or Vcc			3	uA
LVDS DRIVER AC CHARACTERISTICS						
Tpix	Pixel Clock Rate in Period		9.2		74.07	ns
TpixH	Tpix in High Time		T-0.6	T	T+0.6	ns
TpixL	Tpix in Low Time		T-0.6	T	T+0.6	ns
DOrt	Data Output Rise Time	RL=100		500	600	ps
DOft	Data Output Fall Time			500	600	ps
FDO	Output Data Rate		92.5		756	MHz

10.5 AUDIO DAC CHARACTERISTICS

Symbol	Parameter	Min	Typ	Max	Units
Supplies					
ADACVDD	Audio DAC power supply voltage	3.0	3.3	3.6	V
ADACGND	Audio DAC Ground		0		V
$I_{ADACVDD}$	Audio DAC power supply current (stereo)	4.5	9	12	mA
VCM	Audio DAC common mode reference	1.5	1.65	1.8	V
General					
F_s	Sampling Frequency	32	48	192	kHz
OSR	Oversampling Ratio	32	64	128	
Interpolation filter characteristics for normal sped mode					

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	Pass band ripple, 0 .. 0.4535F_s		0.03		dB
	Stop band, >0.5465F_s		-62		dB
	Dynamic Range, 0 .. 0.4535F_s		108		dB
Stereo DAC					
V_{out}	Output swing level: Digital i/p level =0 dBFS , ADACVDD =3.3V (V_{out} = 1.0 * ADACVDD / 3.3)	0.9	1.0	1.1	V_P
VCM	Common mode output voltage	1/2(ADCVDD-ADACGND)			V
Ro	Output impedance @ 1kHz		50	100	
R_{L_min}	Minimum resister load	5			k
C_{L_max}	Maximum capacitor load			20	pF
S/(THD+N)	S/(THD+N) @ 0 dBFS; f_{in} = 1kHz; Fs = 48kHz, A-weighted	76	79		dBr(A)
THD+N @ -60 dBFS	(THD+N) @ -60 dBFS ; fin = 1kHz; Fs = 48kHz, A-weighted	-19	-19.7		dBr(A)
DR	Dynamic Range	76	79.3		dBr(A)
SNR	Signal to noise ratio; A-weighted	93	95		dBr(A)
Channel Separation	Close-talk of Left and Right Channel		85		dB

10.6 CVBS Bypass Characteristics (AV out)

	Description	Min	Typ	Max	Unit
Vout	Output swing level		1.9		V
DP	Differential phase		2	5	o
DG	Differential gain		2	5	%

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.11. Power consumption

Mode			Current: mA	Power consumption: mW
MT8206 digital power	1	SB33A (up)	8.78	28.97
	2	SB18A (up)	6.82	12.27
	3	DV33A	6.23	20.56
	4	DV18A	523.00	941.40
	5	DV25A	16.09	40.30
	6	SDV25A	19.18	47.95
MT8206 analog power	1	XTALVDD	1.45	2.61
	2	ADCVDD	6.14	20.26
	3	LVDD,AB,C	67.74	223.54
	4	AADCVDD	51.89	171.23
	5	ADACVDD	13.34	44.02
	6	DACVDD(2.0V)	78.96	157.90
	7	PLLVDD1,2	25.93	46.67
	8	VPLVDD1	2.12	3.81
	9	VPLVDD2	3.78	12.47
	10	AVDD_VFE0	38.03	125.50
	11	AVDD_VAD0	44.11	145.56
	12	AVDD_VFE1	29.09	52.36
	13	AVDD_VAD1	81.30	146.34
TOTAL IC				2243.72mW
TOTAL IC without DACVDD				2085.82mW

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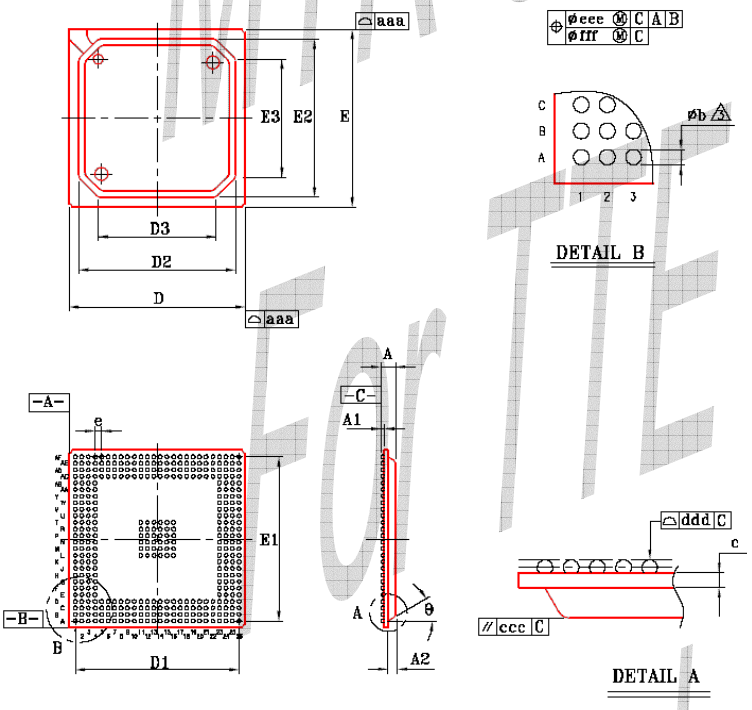
.12. 388 Pin BGA Package Dimension

MT8206AG/BD-L FOR MT8206AG/BD (LEAD FREE VERSION)

1. MT8206AG for basic function that uses MTK surround and MTK vocal audio effect.
2. MT8206AAG for embedded SRS WOW surround.
3. MT8206ABG for embedded SRS TruSurround-XT surround.



Symbol	dimension in mm			dimension in inch		
	MIN	NOM	MAX	MIN	NOM	MAX
A	2.03	2.23	2.43	0.080	0.088	0.096
A1	0.40	0.50	0.60	0.016	0.020	0.024
A2	1.12	1.17	1.22	0.044	0.046	0.048
b	0.50	0.60	0.70	0.020	0.024	0.028
c	0.51	0.56	0.61	0.020	0.022	0.024
D	26.80	27.00	27.20	1.055	1.063	1.071
D1	—	25.00	—	—	0.984	—
D2	23.80	24.00	24.20	0.937	0.945	0.953
D3	17.95	18.00	18.05	0.707	0.709	0.711
E	26.80	27.00	27.20	1.055	1.063	1.071
E1	—	25.00	—	—	0.984	—
E2	23.80	24.00	24.20	0.937	0.945	0.953
E3	17.95	18.00	18.05	0.707	0.709	0.711
e	—	1.00	—	—	0.039	—
aaa	0.20			0.008		
ccc	0.35			0.014		
ddd	0.15			0.006		
eee	0.25			0.010		
fff	0.10			0.004		
θ	30° TYP			30° TYP		

NOTE:
1. CONTROLLING DIMENSION: MILLIMETER.
2. PRIMARY DATUM C AND SEATING PLANE ARE DEFINED BY THE SPHERICAL CROWNS OF THE SOLDER BALLS.
3. DIMENSION b IS MEASURED AT THE MAXIMUM SOLDER BALL DIAMETER, PARALLEL TO PRIMARY DATUM C.
4. THERE SHALL BE A MINIMUM CLEARANCE OF 0.25 mm BETWEEN THE EDGE OF THE SOLDER BALL AND THE BODY EDGE.

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.13.BOM of lead free package

Supplied by SPIL Inc.
Substrate: PPT/Nayan/Kinsus
S/E: ABLEBOND 2000
Bonding wire: gold
M/C: PLASKON NXG-1FP
Solder ball: Sn/Ag/Cu: 95.5/ 4/ 0.5%

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.14. Packing Description

Tray Description

40ea/ Hard Tray (150°C resistance).

Desiccants

Size: 110*120 mm.

Weight: 66g

Aluminum Foil Bag

Size: 250*500 mm.

Thickness: 0.12 +/- 0.005 mm.

Surface impedance: 10^{8}-10^{12} Ohm/SQ

Box Description

Material: 3 Layer B corrugated paper.

Strength: 1176000 PA.

Box size: 355(L)*157(W)*90.5(H) mm.

Printing: Black (words, warning, index)

Side Plank

Material: 5 Layer AB corrugated paper

Strength: 1793400 PA.

a. Size: 405(L)*237(W) mm
   Fixture: 2 pieces of EPE (recyclable material)
   Thickness: 20 mm

b. Size: 1151(L)*485(W) mm
   Fixture: 1 pieces of EPE (recyclable material)
   Thickness: 20 mm

Carton Description

Material: 5 Layer AB corrugated paper.

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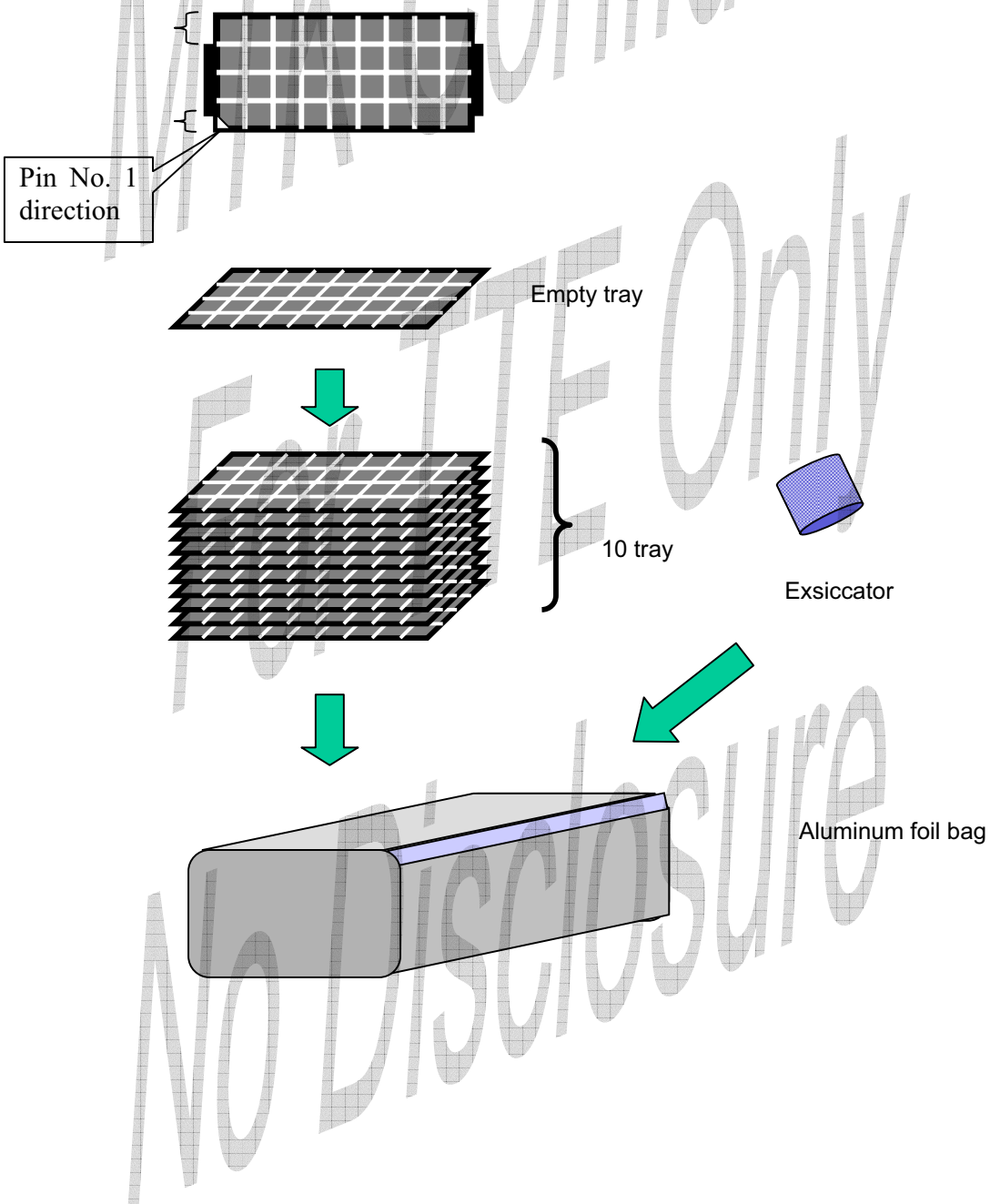
Strength: 1793400 PA.

Carton size: 558(L)*428(W)*264(H) mm.

Printing: Black (words, warning, index)

Packing Flow



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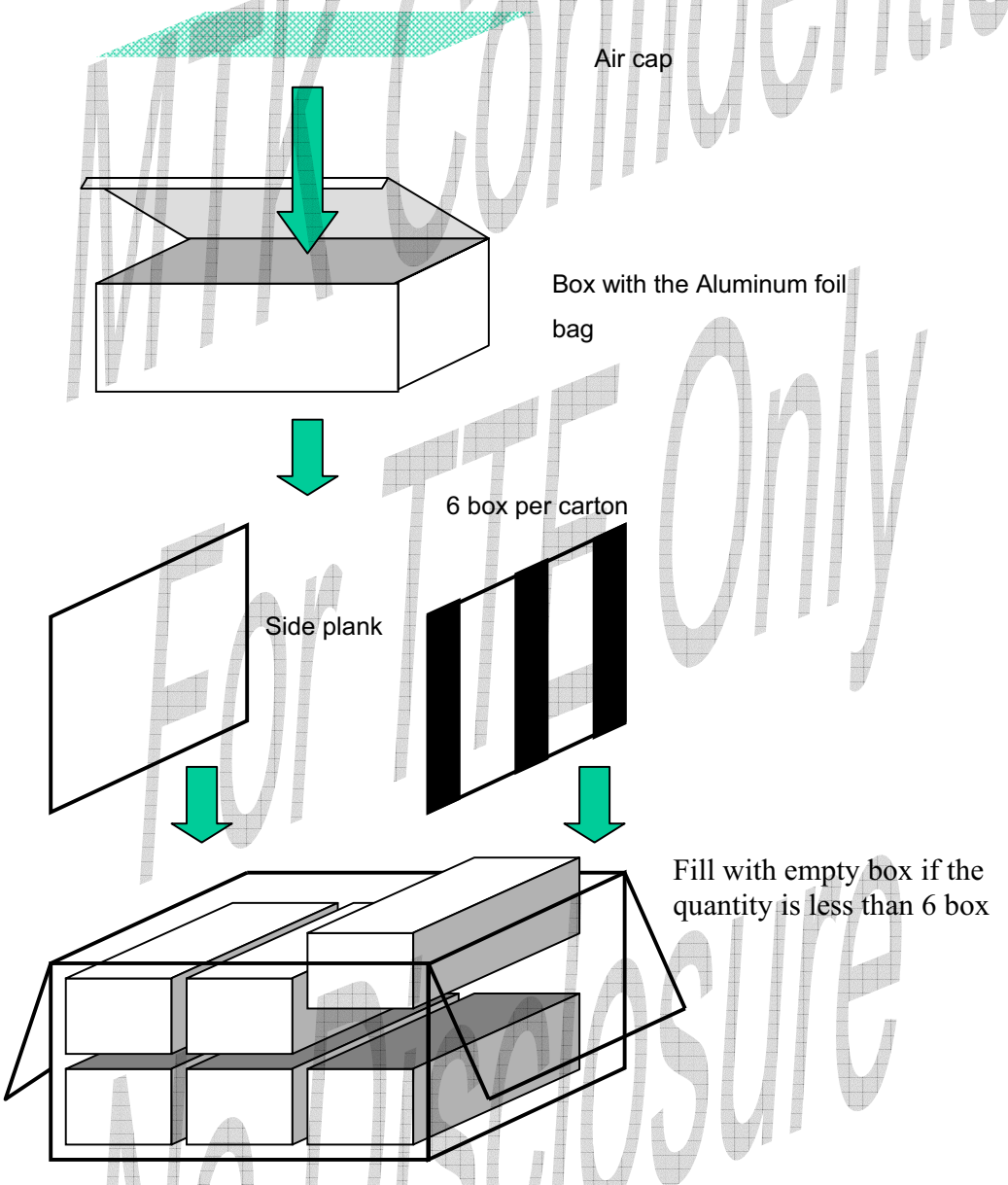

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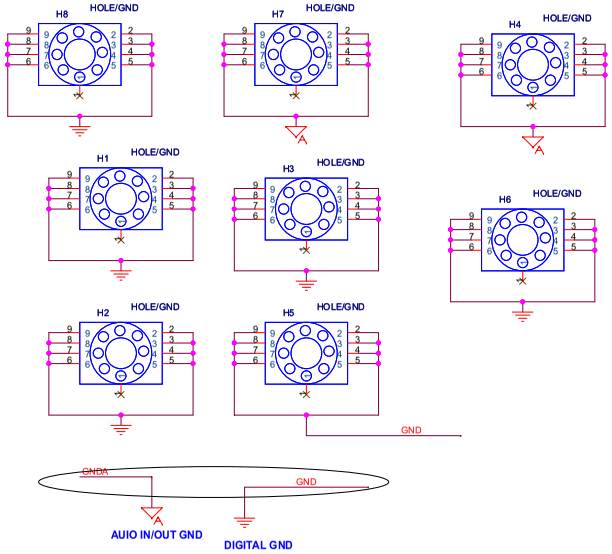
MT8202M1V8

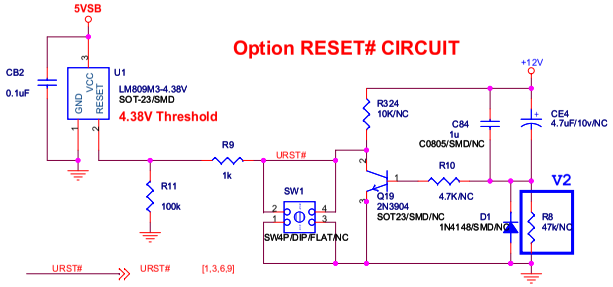
MT8202E (PBGA388) CRT/LCDTV DEMO/VERFICATION BOARD 4 LAYERS

"GND Need Very Strong"

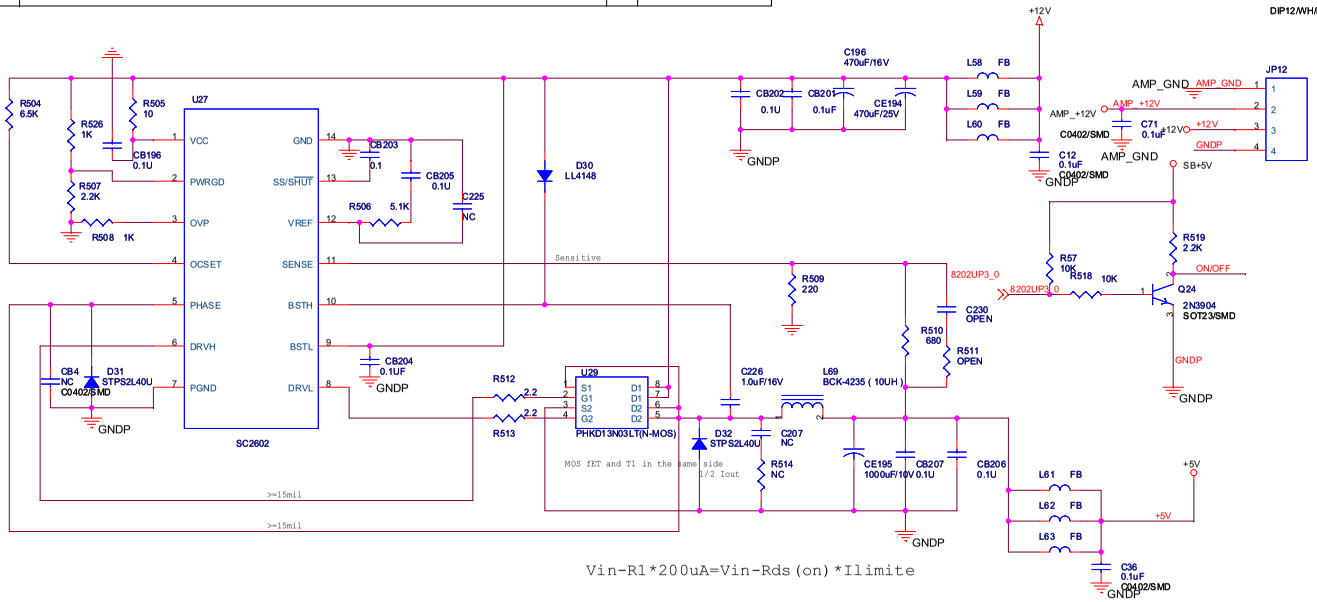
Rev	History	P#	Date
TCL_V1.0	Modified		2005/09/30
TCL_V1.4	Modified		2006/05/25
TCL_V1.5	Modified		2006/08/17

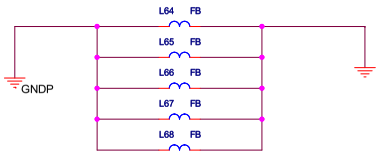
1. INDEX / POWER / RESET
2. LDO
3. MT8202E PBGA388
4. MT8202 ANALOG DECOUPLING
5. MT8202 DIGITAL DECOUPLING
6. DDR MEMORY & FLASH
7. HDMI INPUT -Sil9011 / MT8293
8. CCIR656 / MT5351 INTERFACE
9. VGA IN & PC AUDIO IN
10. CS5340 ADC & AV BOARD I/F
11. AUDIO / VIDEO IN CIRCUIT
12. CS4334 / WM8766(8768) ADAC
13. LVDS / CRT / TTL OUT
14. BACK LIGHT / KEYPAD
15. CARD I/F & DEBUG PORT & GPIO LIST

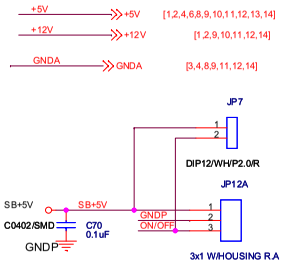




Option RESET# CIRCUIT







Vin-R1*200uA=Vin-Rds(on)*Ilimite

R1=Rds(on)max*Ilimite/200uA = 0.023 * 2A *1.25 /200uA = 184

R1=Rds(on)max*Ilimite/200uA = 0.023 * 4A *1.25/200uA = 368

SC1102 BOM	
R1 184(2A)/368(5A)	*1
D1 MBRA130	*1
D2 MBR0520	*1
D3 MBRD1035	*1
Q1A,Q2B STP40NE	*2
C1 10uF/16V	*1
C2,3,4 270uF/16V	*3
C5 0.1uF	*1
C7,8 1uF	*2
C10,11,12,13,14 180uF/6V	*5
T1 4uH	*1
R2 10 0805	*1
R3,5 1K 0603	*2
R4 2K 0603	*1
R6 475 0603	*1
R7 127 0603	*1
R9 3.9 0603	*1
R10 2.2 0603	*1
U1 SC1102	*1

SC1104 BOM	
D1 LL4148	*1
D2 MBRA130L	*1
Q1A,Q2B STP40NE	*2
C1 10uF/16V	*1
C2,3,4 270uF/16V	*3
C6 ?	*1
C8 1uF	*1
C9 ?	*1
C15 ?	*1
C16 ?	*1
C10,11,12,13,14 180uF/6V	*5
T1 4uH	*1
R6 508 0603	*1
R7 127 0603	*1
R8 ?	*1
R9 2.2 0603	*1
R10 2.2 0603	*1
R11 ?	*1
R12 ?	*1
R13 ?	*1
U2 SC1104	*1

Remark:
The components which did not marked the value in the circuit are all using in SC1104 solution.

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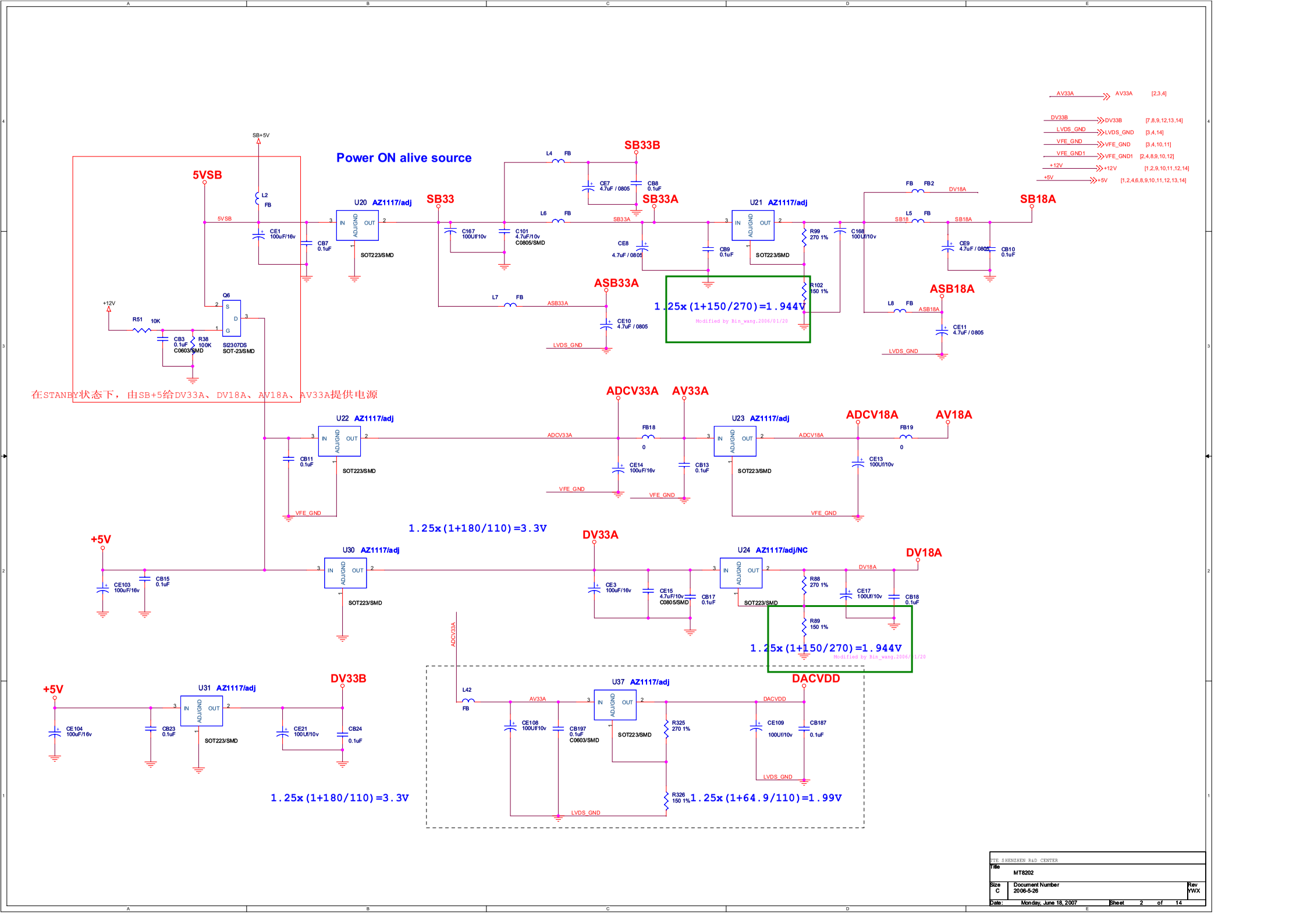
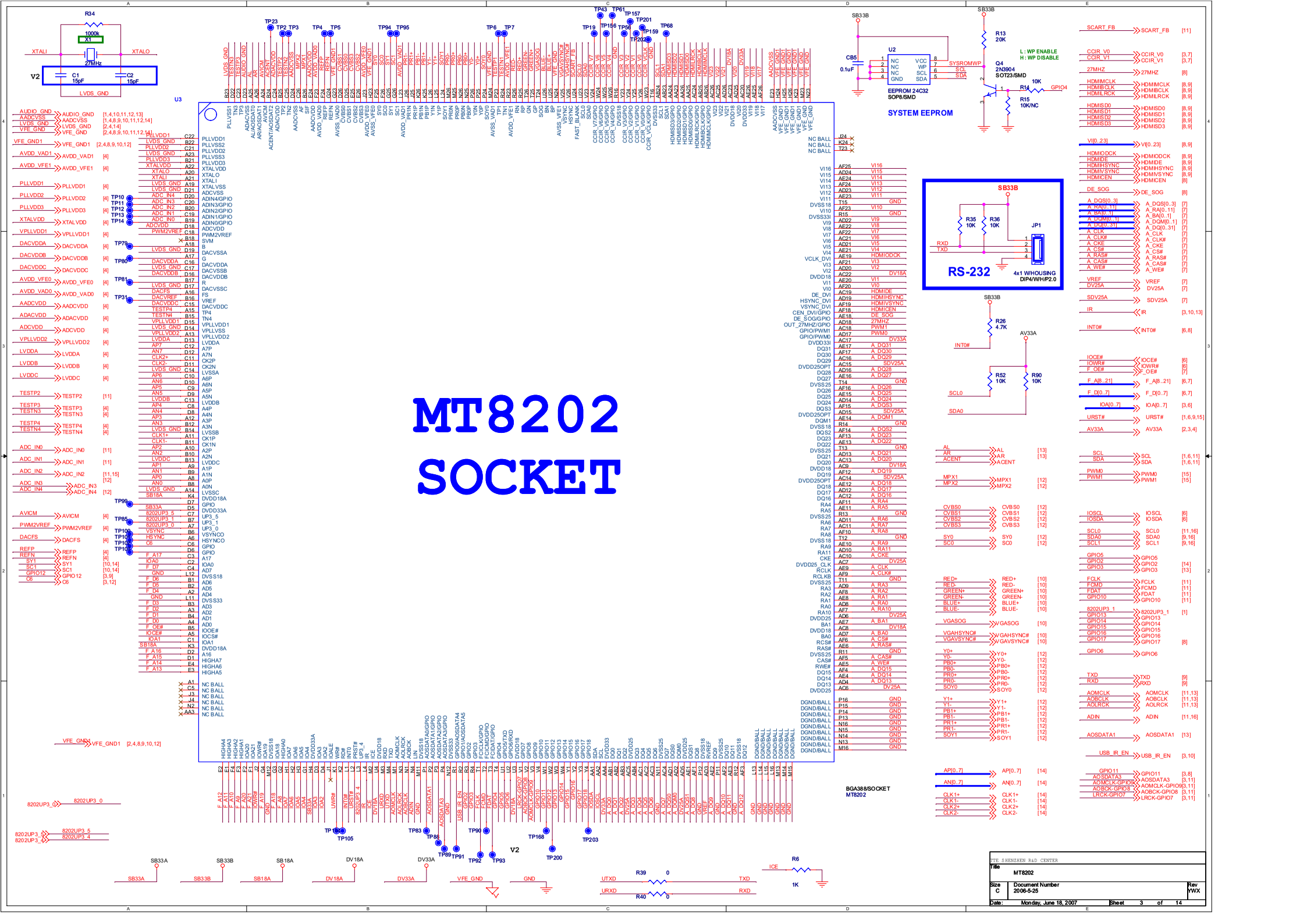
Title: MT8202			
Size: C	Document Number: 2006-5-26		Rev: YWX
Date: Monday, July 23, 2007	Sheet 1 of 14		



TTE SHENZHEN R&D CENTER			
Title: MT8202			
Size: C	Document Number: 2006-5-26		Rev: YWX
Date: Monday, June 18, 2007	Sheet 2 of 14		


MT8202
SOCKET
U3
V2
SB33B
U2
EEPROM 24C32
SOP8/SMD
SYSTEM EEPROM
L : WP ENABLE
H : WP DISABLE
SB33B
JP1
RS-232
4x1 W/HOUSING
DIP4/W/H/P2.0
SB33B
AV33A
BGA388/SOCKET
MT8202
TTE SHENZHEN R&D CENTER
MT8202
Document Number
2006-5-25
Monday, June 18, 2007
Sheet 3 of 14

AV33A [2,3,4]
XTALVDD [3]
ADCVDD [3]
AVICM [3]
PWM2VREF [3]
DACFS [3]
LVDDA [3]
LVDDB [3]
LVDDC [3]
AVDD_VFE0 [3]
AVDD_VAD0 [3]
AADCVDD [3]
ADACVDD [3]
VPLLVDD1 [3]
VPLLVDD2 [3]
AVDD_VAD1 [3]
AVDD_VFE1 [3]
PLLVDD1 [3]
PLLVDD2 [3]
PLLVDD3 [3]
DACVDDA [3]
DACVDDB [3]
DACVDDC [3]
TESTP3 [3]
TESTN3 [3]
TESTP4 [3]
TESTN4 [3]
AUDIO_GND [1,3,10,11,12,13]
LVDS_GND [2,3,14]
VFE_GND [2,3,10,11]
AADCVSS [1,3,10,11,12,13]
VFE_GND1 [2,3,11,12]
REFP [3]
REFN [3]
GNDA [1,3,10,11,12,13]
AADCVSS [1,3,8,9,10,11,12,14]
VFE_GND [2,3,8,9,10,11,12,14]
+5V [1,2,4,6,8,9,10,11,12,13,14]

STANDBY ANALOG POWER

ASB18A

L12 FB
CE23 4.7uF/10V
C4 1uF
C5 4.7uF
CB26 0.1uF C0402/SMD
XTALVDD
LVDS_GND

ASB33A

L13 FB
CE26 4.7uF/10V
C10 1uF
C11 4.7uF
CB29 0.1uF C0402/SMD
ADCVDD
LVDS_GND

NORMAL VIDEO DAC POWER

DACVDD

CE28 4.7uF/10V
C14 1uF
FB5 FB BEAD/SMD/0603
C15 4.7uF
CB33 0.1uF C0402/SMD
DACVDDA
FB6 FB BEAD/SMD/0603
C16 4.7uF
CB34 0.1uF C0402/SMD
DACVDDB
FB8 FB BEAD/SMD/0603
C18 4.7uF
CB37 0.1uF C0402/SMD
DACVDDC
LVDS_GND

NORMAL VIDEO DAC POWER

AV33A

CE31 4.7uF/10V
C20 1uF
FB10 FB BEAD/SMD/0603
C21 4.7uF
CB40 0.1uF C0402/SMD
LVDDA
C23 4.7uF
CB42 0.1uF C0402/SMD
LVDDB
C25 4.7uF
CB45 0.1uF C0402/SMD
LVDDC
LVDS_GND

NORMAL AUDIO ADC / DAC POWER

ADCV33A

L14 150uH L/IND/DIP/P10.0
CE33 4.7uF/10V
C27 1uF
CE34 220uF/16V
CB47 0.1uF C0402/SMD
AADCVDD
AADCVSS

ADCV33A

L15 150uH L/IND/DIP/P10.0
CE35 4.7uF/10V
C28 1uF
CE36 220uF/16V
CB48 0.1uF C0402/SMD
ADACVDD
AUDIO_GND

NORMAL ANALOG POWER

ASB18A V2

FB1 FB
CE24 4.7uF/10V
C6 1uF
C7 4.7uF
CB27 0.1uF C0402/SMD
PLLVDD1
C9 4.7uF
CB28 0.1uF C0402/SMD
PLLVDD2
CB30 0.1uF C0402/SMD
PLLVDD3
LVDS_GND

AV18A

FB4 FB
CE27 4.7uF/10V
CB31 1uF
C13 4.7uF
CB32 0.1uF C0402/SMD
VPLLVDD1
LVDS_GND

AV33A

FB7 FB
CE29 4.7uF/10V
CB35 1uF
C17 4.7uF
CB36 0.1uF C0402/SMD
VPLLVDD2
LVDS_GND

NORMAL VIDEO ADC POWER

ADCV33A

FB9 FB
CE30 4.7uF/10V
CB38 1uF
C19 4.7uF
CB39 0.1uF C0402/SMD
AVDD_VFE0
FB11 FB
C22 4.7uF
CB41 0.1uF C0402/SMD
AVDD_VAD0
VFE_GND1

ADCV18A

FB13 FB
CE32 4.7uF/10V
CB43 1uF
C24 4.7uF
CB44 0.1uF C0402/SMD
AVDD_VFE1
FB15 FB
C26 4.7uF
CB46 0.1uF C0402/SMD
AVDD_VAD1
VFE_GND

TP24
TP26
AADCVSS
GNDA
AUDIO_GND
LVDS_GND
VFE_GND
VFE_GND1

+5V
CE12 10uF/25v
CE16 4.7uF/16v
AADCVSS

CLOSE TO 8202 PIN

AVICM
CB25 0.1uF
C3 10uF/10v C0805/SMD
AUDIO_GND

PWM2VREF
CE25 4.7uF/16V
C8 0.1uF C0402/SMD
LVDS_GND

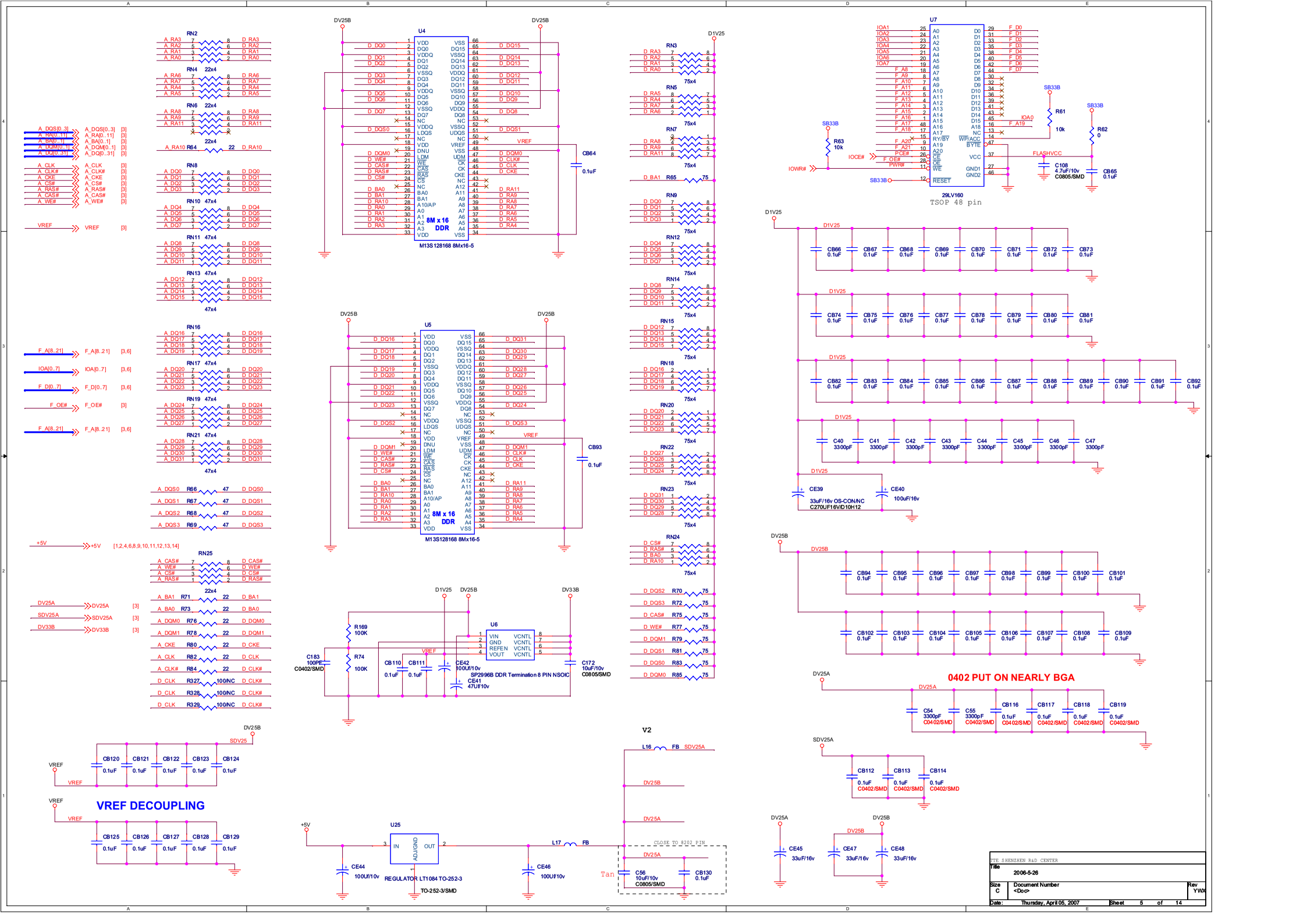
DACFS
R42 820
V2
LVDS_GND

VFE_GND1
C51 4.7uF/10v C0805/SMD
REFP
C49 10uF/10v C0805/SMD
C173 0.1uF C0402/SMD
C174 0.01uF C0402/SMD
REFN
C50 4.7uF/10v C0805/SMD
VFE_GND1

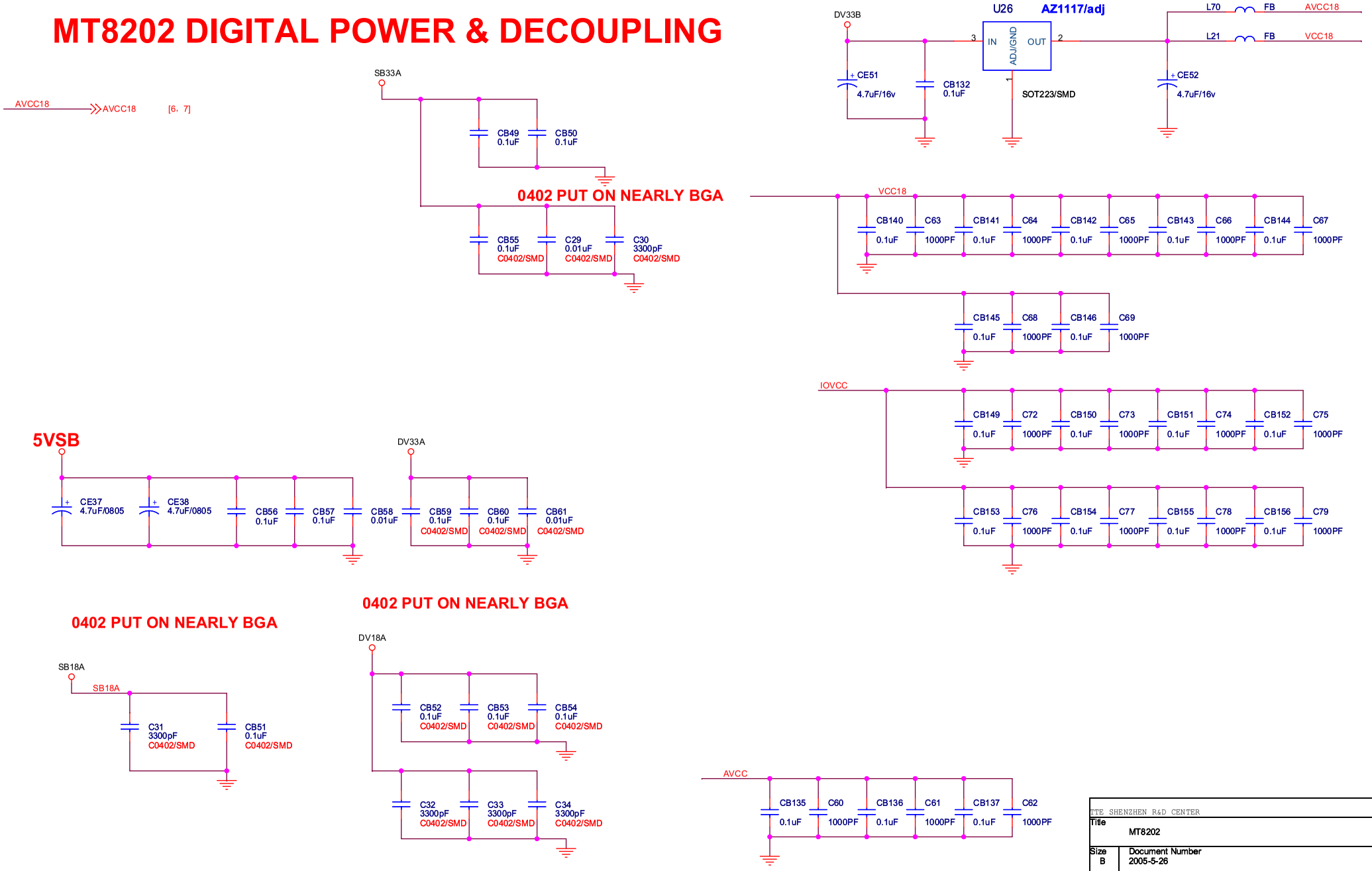
TESTP3 R43 49.9 1% PLLVDD1
TESTN3 R44 49.9 1% PLLVDD1
TESTP4 R45 49.9 1% VPLLVDD1
TESTN4 R46 49.9 1% VPLLVDD1

TP27 VFE_GND
TP8 VFE_GND
TP9 VFE_GND
TP15 VFE_GND1
TP17 VFE_GND1
TP18 LVDS_GND

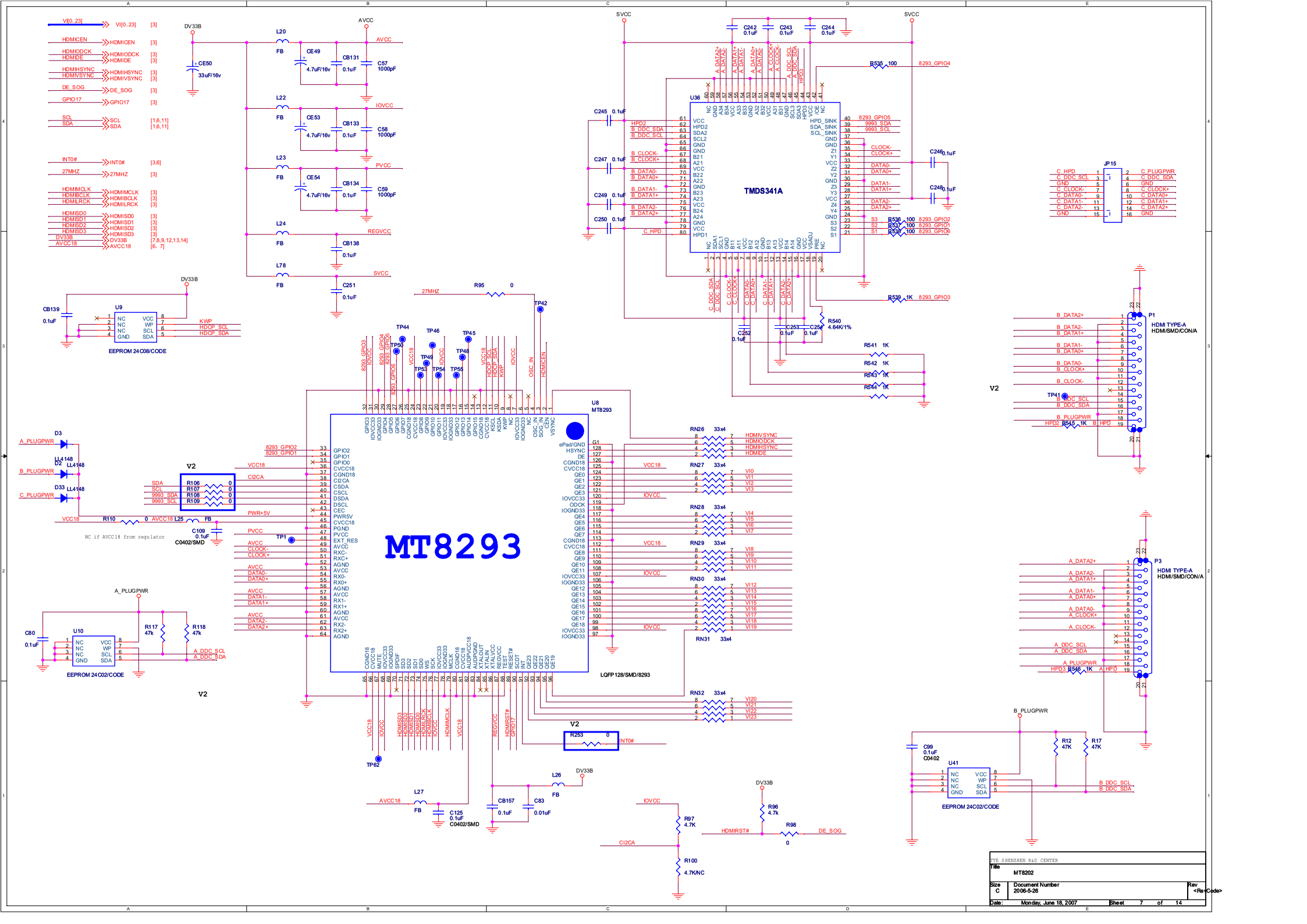
TTE SHENZHEN R&D CENTER			
Title: MT8202			
Size: C	Document Number: 2006-5-26		Rev: YWX
Date: Monday, June 18, 2007	Sheet 4 of 14		

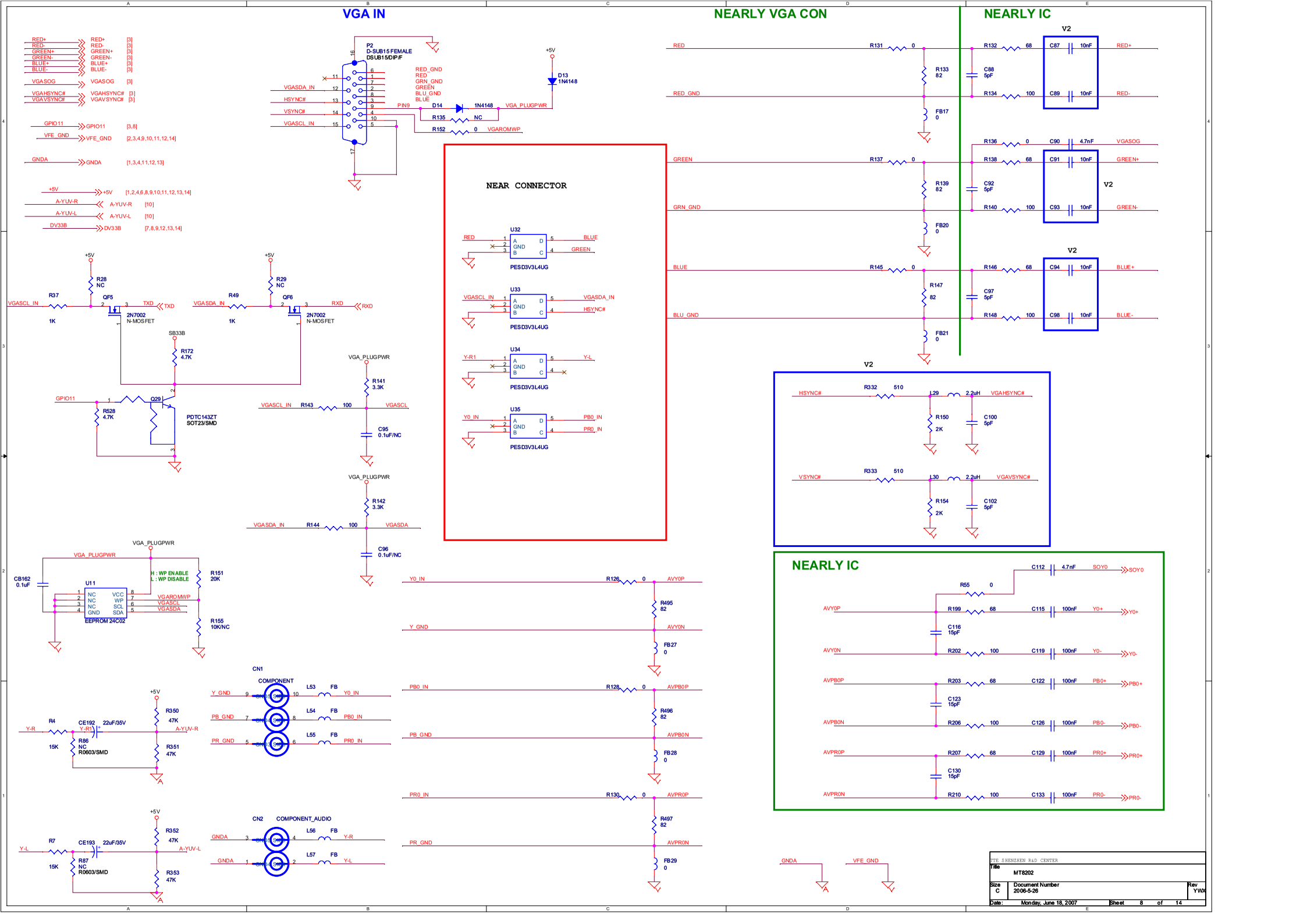

U4
M13S128168 8Mx16-5
8M x 16 DDR
U5
M13S128168 8Mx16-5
8M x 16 DDR
U6
SP2996B DDR Termination 8 PIN NSOIC
U7
29LV160
TSOP 48 pin
U25
REGULATOR LT1084 TO-252-3
TO-252-3/SMD
V2
0402 PUT ON NEARLY BGA
VREF DECOUPLING
CLOSE TO 8202 PIN
TTE SHENZHEN R&D CENTER
Title
2006-5-26
Size C
Document Number <Doc>
Rev YWX
Date: Thursday, April 05, 2007
Sheet 5 of 14

MT8202 DIGITAL POWER & DECOUPLING

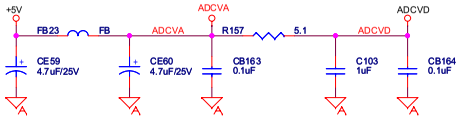


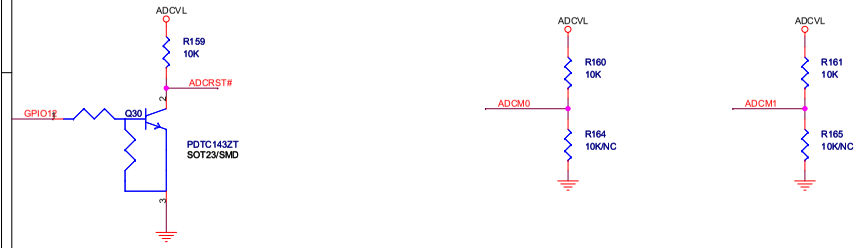
TTE SHENZHEN R&D CENTER			
Title: MT8202			
Size: B	Document Number: 2005-5-26		Rev: YWX
Date: Thursday, March 01, 2007		Sheet 6 of 14	

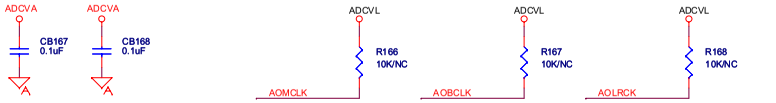

MT8293
LQFP128/SMD/8293
TMDS341A
EEPROM 24C08/CODE
EEPROM 24C02/CODE
HDMI TYPE-A
HDMI/SMD/CON/A
V2
TP1
TP41
TP42
TP44
TP45
TP46
TP48
TP49
TP50
TP53
TP54
TP55
TP62
JP15
P1
P3
U8
U9
U10
U36
U41
D3
D2
D33
L20
L22
L23
L24
L78
L25
L26
L27
CE49
CE50
CE53
CE54
CB131
CB133
CB134
CB138
CB139
CB157
C57
C58
C59
C109
C125
C251
C80
C83
C99
R95
R110
R117
R118
R253
R96
R97
R98
R100
R535
R536
R537
R538
R539
R540
R541
R542
R543
R544
C242
C243
C244
C245
C246
C247
C248
C249
C250
C252
C253
C254
RN26
RN27
RN28
RN29
RN30
RN31
RN32
VI[0..23]
HDMICEN
HDMIODCK
HDMIDE
HDMIHSYNC
HDMIVSYNC
DE_SOG
GPIO17
SCL
SDA
INT0#
27MHZ
HDMIMCLK
HDMIBCLK
HDMILRCK
HDMISD0
HDMISD1
HDMISD2
HDMISD3
DV33B
AVCC18
SVCC
AVCC
IOVCC
PVCC
REGVCC
A_PLUGPWR
B_PLUGPWR
C_PLUGPWR
KWP
HDCP_SCL
HDCP_SDA
9993_SDA
9993_SCL
8293_GPIO1
8293_GPIO2
8293_GPIO3
8293_GPIO4
8293_GPIO5
8293_GPIO6
PWR+5V
NC if AVCC18 from regulator
LL4148
4.7uF/16v
33uF/16v
0.1uF
1000pF
FB
0 AVCC18
0 IOVCC
0 SVCC
0 27MHZ
4.64K/1%
1K
4.7K
4.7K/NC
0.01uF
C0402/SMD
C0402
33x4
A_DATA2+
A_DATA2-
A_DATA1+
A_DATA1-
A_DATA0+
A_DATA0-
A_CLOCK+
A_CLOCK-
A_DDC_SCL
A_DDC_SDA
B_DATA2+
B_DATA2-
B_DATA1+
B_DATA1-
B_DATA0+
B_DATA0-
B_CLOCK+
B_CLOCK-
B_DDC_SCL
B_DDC_SDA
C_HPD
C_DDC_SCL
C_DDC_SDA
C_CLOCK-
C_CLOCK+
C_DATA0-
C_DATA0+
C_DATA1-
C_DATA1+
C_DATA2-
C_DATA2+
GND
HPD3
HPD2
8293_GPIO1
8293_GPIO2
8293_GPIO3
8293_GPIO4
8293_GPIO5
8293_GPIO6
TTE SHENZHEN R&D CENTER
MT8202
Size C
Document Number 2006-5-26
Rev <RevCode>
Date: Monday, June 18, 2007
Sheet 7 of 14

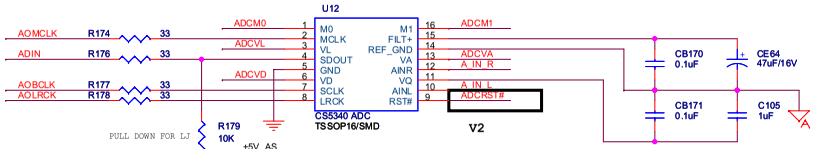

VGA IN
NEARLY VGA CON
NEARLY IC
NEAR CONNECTOR
RED+ [3]
RED- [3]
GREEN+ [3]
GREEN- [3]
BLUE+ [3]
BLUE- [3]
VGASOG [3]
VGAHSYNC# [3]
VGAVSYNC# [3]
GPIO11 [3,8]
VFE_GND [2,3,4,9,10,11,12,14]
GNDA [1,3,4,11,12,13]
+5V [1,2,4,6,8,9,10,11,12,13,14]
A-YUV-R [10]
A-YUV-L [10]
DV33B [7,8,9,12,13,14]
P2
D-SUB15 FEMALE
DSUB15/DIP/F
RED_GND
RED
GRN_GND
GREEN
BLU_GND
BLUE
VGASDA_IN
HSYNC#
VSYNC#
VGASCL_IN
PIN9
D14
1N4148
VGA_PLUGPWR
R135 NC
R152 0 VGAROMWP
D13
1N4148
U32
PESD3V3L4UG
U33
PESD3V3L4UG
U34
PESD3V3L4UG
U35
PESD3V3L4UG
RED
GREEN
BLUE
Y-R1
Y-L
Y0_IN
PB0_IN
PR0_IN
R131 0
R133 82
FB17 0
R132 68
C88 5pF
R134 100
C87 10nF
C89 10nF
RED+
RED-
GREEN
GRN_GND
R137 0
R139 82
FB20 0
R136 0
C90 4.7nF
R138 68
C92 5pF
R140 100
C91 10nF
C93 10nF
VGASOG
GREEN+
GREEN-
BLUE
BLU_GND
R145 0
R147 82
FB21 0
R146 68
C97 5pF
R148 100
C94 10nF
C98 10nF
BLUE+
BLUE-
V2
R28 NC
R29 NC
R37 1K
R49 1K
QF5
QF6
2N7002
N-MOSFET
TXD
RXD
SB33B
R172 4.7K
GPIO11
Q29
R528 4.7K
PDTC143ZT
SOT23/SMD
R141 3.3K
R143 100
C95 0.1uF/NC
R142 3.3K
R144 100
C96 0.1uF/NC
R332 510
L29 2.2uH
R150 2K
C100 5pF
VGAHSYNC#
R333 510
L30 2.2uH
R154 2K
C102 5pF
VGAVSYNC#
CB162 0.1uF
U11
EEPROM 24C02
H : WP ENABLE
L : WP DISABLE
R151 20K
R155 10K/NC
VGAROMWP
VGASCL
VGASDA
R126 0
R495 82
FB27 0
AVY0P
AVY0N
R128 0
R496 82
FB28 0
AVPB0P
AVPB0N
R130 0
R497 82
FB29 0
AVPR0P
AVPR0N
CN1
COMPONENT
L53 FB
L54 FB
L55 FB
R4 15K
CE192 22uF/35V
R86 NC R0603/SMD
R350 47K
R351 47K
A-YUV-R
R7 15K
CE193 22uF/35V
R87 NC R0603/SMD
R352 47K
R353 47K
A-YUV-L
CN2
COMPONENT_AUDIO
L56 FB
L57 FB
GNDA
VFE_GND
R55 0
C112 4.7nF
SOY0
R199 68
C115 100nF
Y0+
C116 15pF
R202 100
C119 100nF
Y0-
R203 68
C122 100nF
PB0+
C123 15pF
R206 100
C126 100nF
PB0-
R207 68
C129 100nF
PR0+
C130 15pF
R210 100
C133 100nF
PR0-
TTE SHENZHEN R&D CENTER
Title
MT8202
Size C
Document Number 2006-5-26
Rev YWX
Date: Monday, June 18, 2007
Sheet 8 of 14

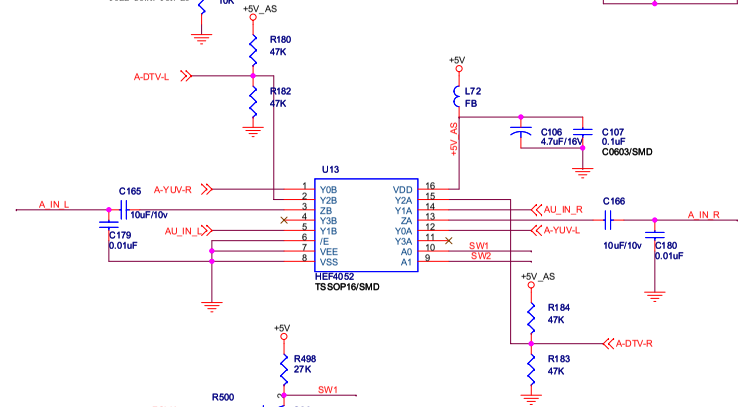
AUDIO ADC

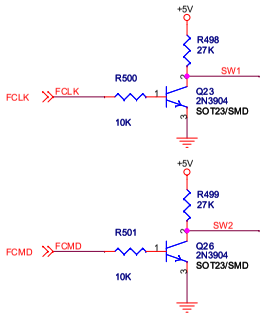




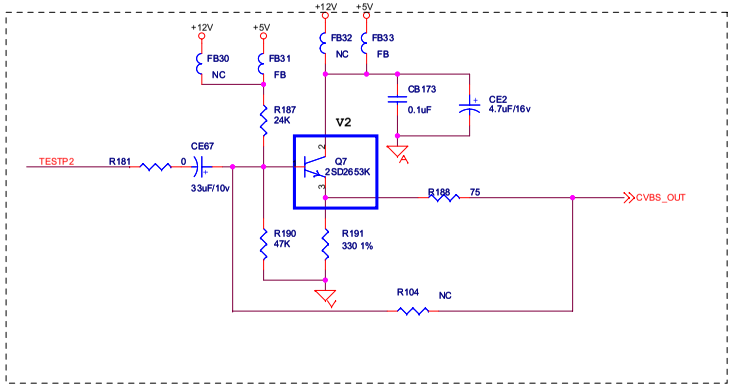


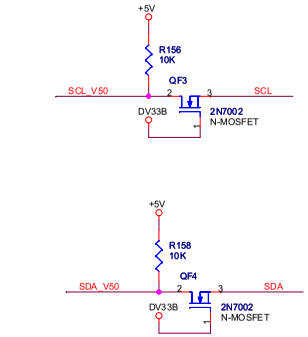


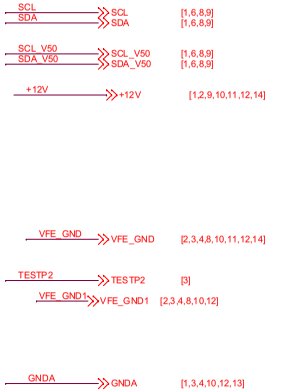




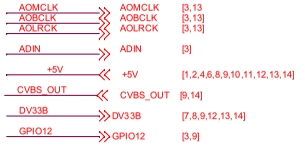
BYPASS VIDEO OUTPUT

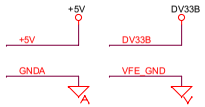






AUDIO ADC





TTE SHENZHEN R&D CENTER			
Title: MT8202			
Size: C	Document Number: 2006-5-26		Rev: YWX
Date: Thursday, June 21, 2007	Sheet 9 of 14		

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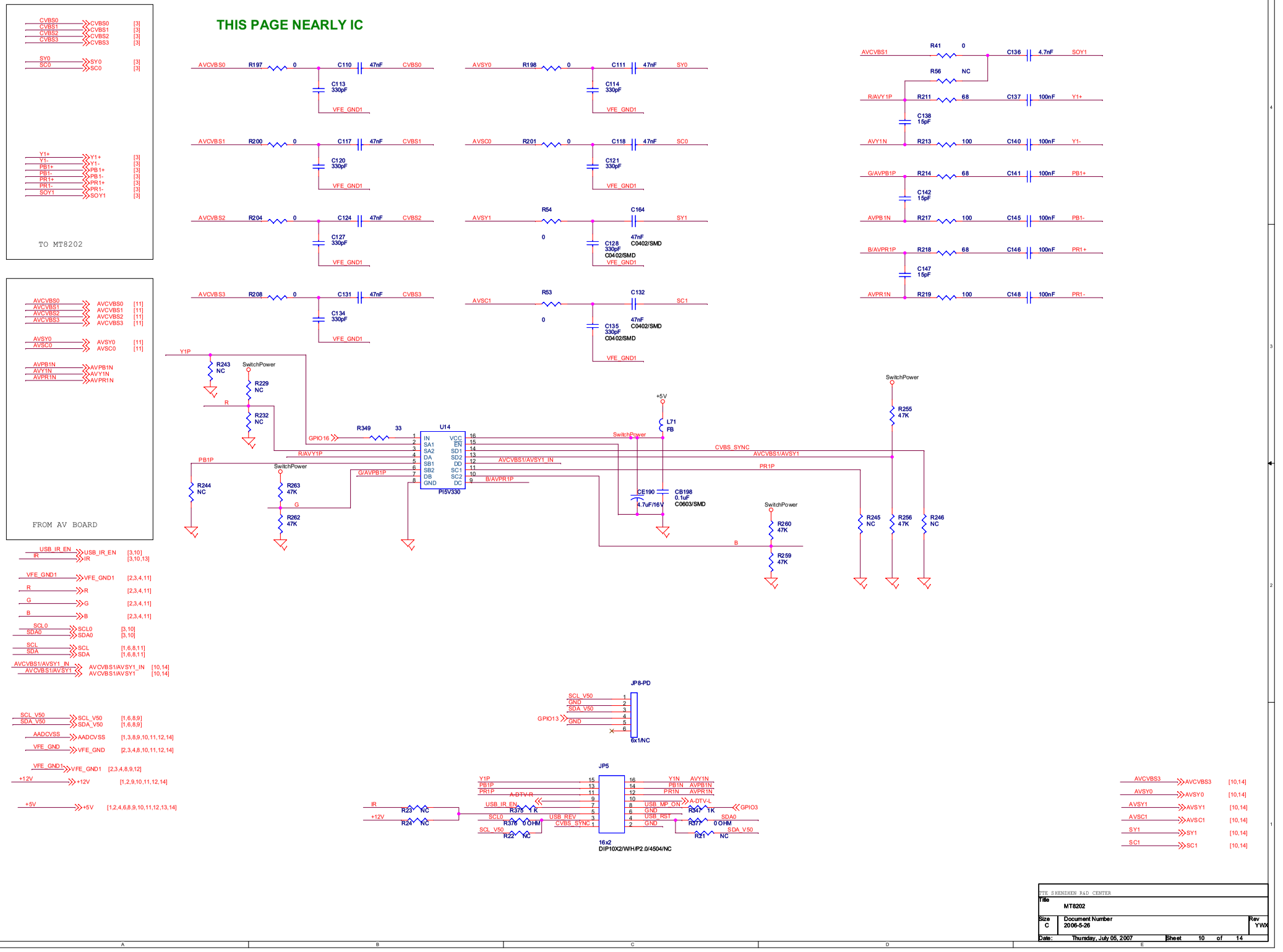
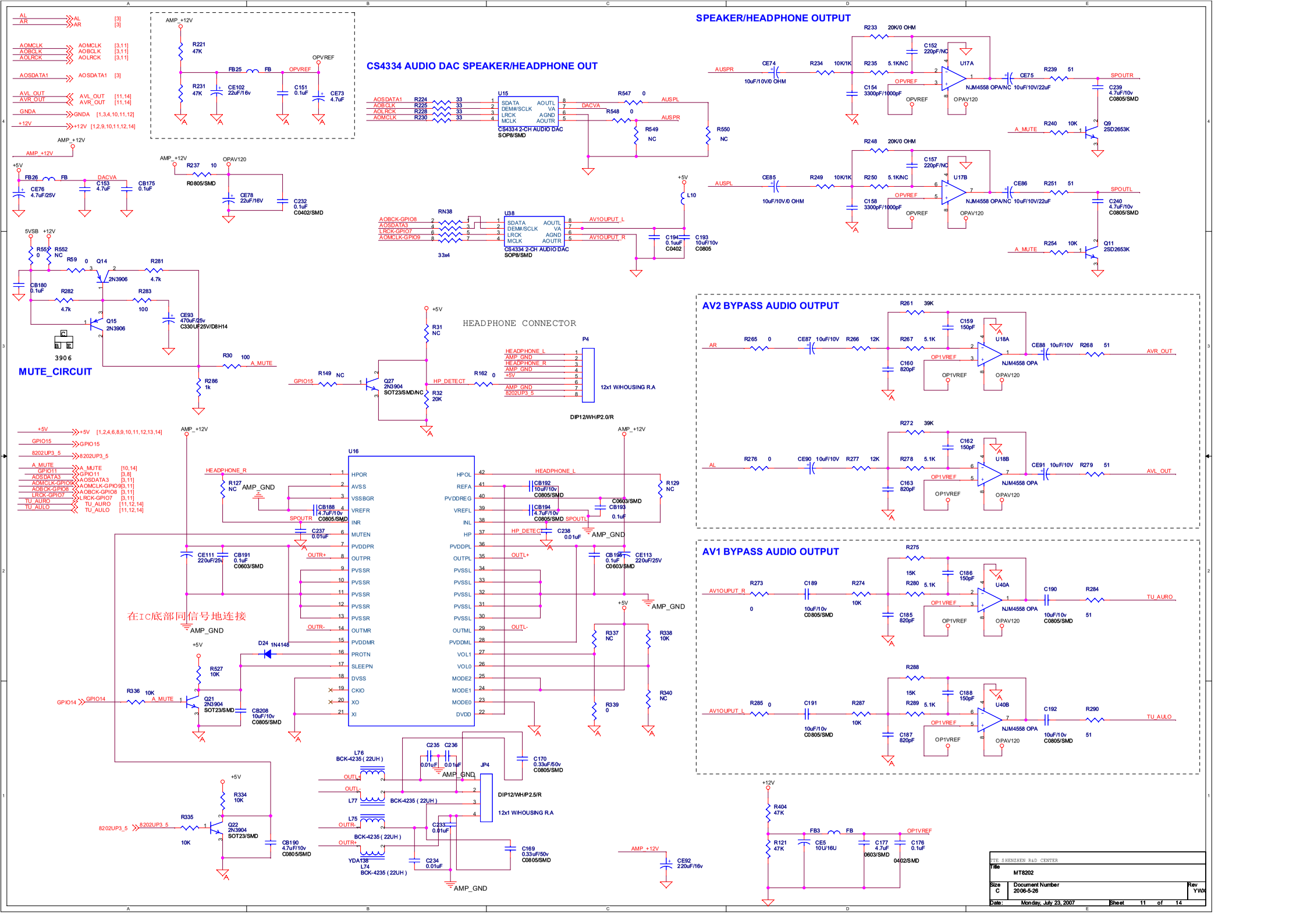
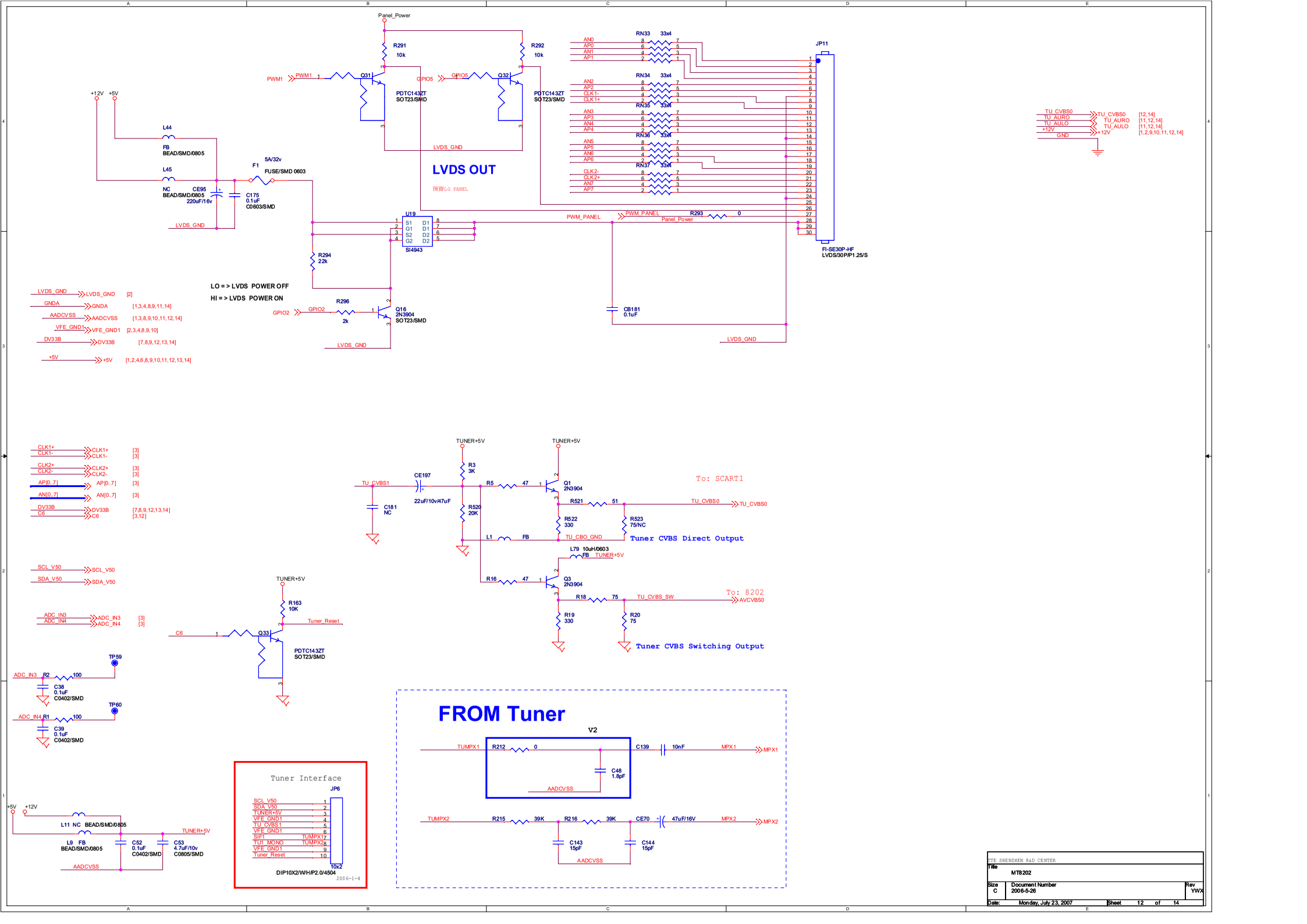

CVBS0 CVBS1 CVBS2 CVBS3 [3]
SY0 SC0 [3]
Y1+ Y1- PB1+ PB1- PR1+ PR1- SOY1 [3]
TO MT8202
AVCVBS0 AVCVBS1 AVCVBS2 AVCVBS3 [11]
AVSY0 AVSC0 [11]
AVPB1N AVY1N AVPR1N
FROM AV BOARD
USB_IR_EN IR [3,10] [3,10,13]
VFE_GND1 [2,3,4,11]
R [2,3,4,11]
G [2,3,4,11]
B [2,3,4,11]
SCL0 SDA0 [3,10]
SCL SDA [1,6,8,11]
AVCVBS1/AVSY1_IN AVCVBS1/AVSY1 [10,14]
SCL_V50 SDA_V50 [1,6,8,9]
AADCVSS [1,3,8,9,10,11,12,14]
VFE_GND [2,3,4,8,10,11,12,14]
+12V [1,2,9,10,11,12,14]
+5V [1,2,4,6,8,9,10,11,12,13,14]
AVCVBS0 R197 0 C110 47nF CVBS0
C113 330pF VFE_GND1
AVSY0 R198 0 C111 47nF SY0
C114 330pF VFE_GND1
AVCVBS1 R200 0 C117 47nF CVBS1
C120 330pF VFE_GND1
AVSC0 R201 0 C118 47nF SC0
C121 330pF VFE_GND1
AVCVBS2 R204 0 C124 47nF CVBS2
C127 330pF VFE_GND1
AVSY1 R54 0 C164 47nF SY1
C128 330pF C0402/SMD VFE_GND1
AVCVBS3 R208 0 C131 47nF CVBS3
C134 330pF VFE_GND1
AVSC1 R53 0 C132 47nF SC1
C135 330pF C0402/SMD VFE_GND1
AVCVBS1 R41 0 C136 4.7nF SOY1
R56 NC
R/AVY1P R211 68 C137 100nF Y1+
C138 15pF
AVY1N R213 100 C140 100nF Y1-
G/AVPB1P R214 68 C141 100nF PB1+
C142 15pF
AVPB1N R217 100 C145 100nF PB1-
B/AVPR1P R218 68 C146 100nF PR1+
C147 15pF
AVPR1N R219 100 C148 100nF PR1-
Y1P R243 NC SwitchPower R229 NC R R232 NC
GPIO16 R349 33 U14
IN SA1 SA2 DA SB1 SB2 DB GND VCC EN SD1 SD2 DD SC1 SC2 DC
PI5V330
R/AVY1P PB1P SwitchPower R263 47K G R262 47K R244 NC G/AVPB1P
AVCVBS1/AVSY1_IN B/AVPR1P
+5V L71 FB SwitchPower
CE190 4.7uF/16V CB198 0.1uF C0603/SMD
CVBS_SYNC AVCVBS1/AVSY1 PR1P
SwitchPower R260 47K B R259 47K
SwitchPower R255 47K R245 NC R256 47K R246 NC
JP8-PD
SCL_V50 GND SDA_V50 GPIO13 GND
6x1/NC
JP5
Y1P PB1P PR1P A-DTV-R USB_IR_EN SCL0 SCL_V50 USB_REV CVBS_SYNC
Y1N AVY1N PB1N AVPB1N PR1N AVPR1N A-DTV-L USB_MP_ON GND USB_RST GND SDA0 SDA_V50 GPIO3
IR +12V R23 NC R24 NC R375 1K R376 0 OHM R22 NC R347 1K R377 0 OHM R21 NC
16x2
DIP10X2/W/H/P2.0/4504/NC
AVCVBS3 AVSY0 AVSY1 AVSC1 SY1 SC1 [10,14]

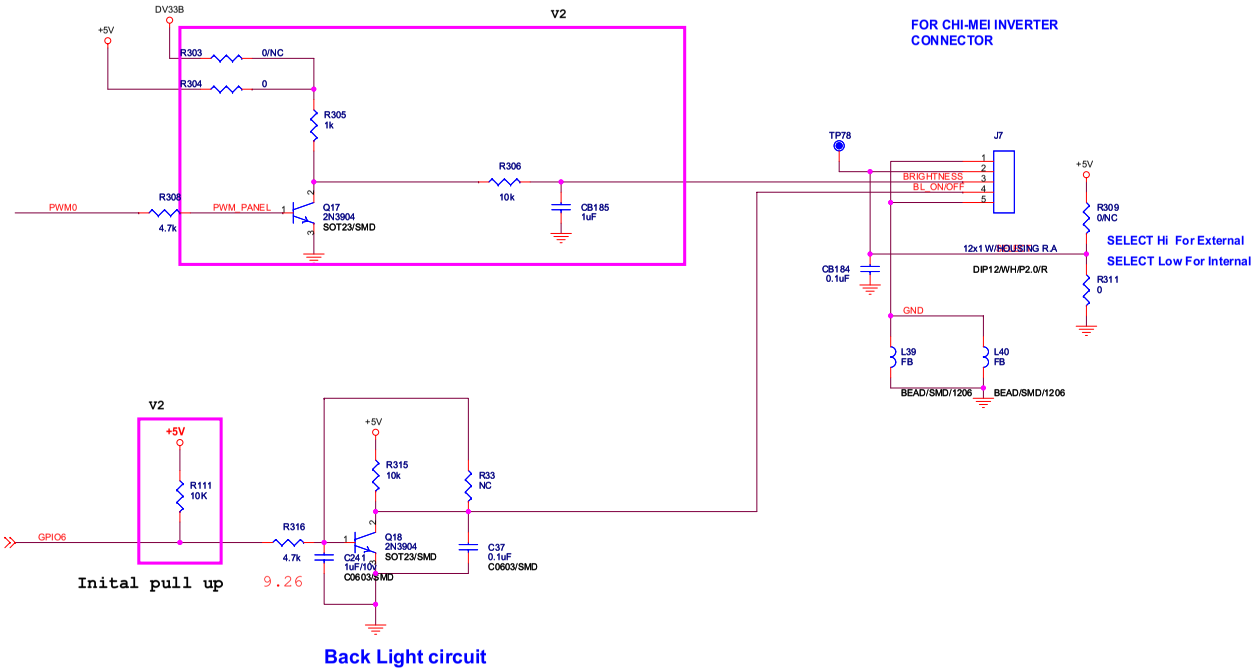
TTE SHENZHEN R&D CENTER			
Title: MT8202			
Size: C	Document Number: 2006-5-26		Rev: YWX
Date: Thursday, July 05, 2007	Sheet 10 of 14		


SPEAKER/HEADPHONE OUTPUT
CS4334 AUDIO DAC SPEAKER/HEADPHONE OUT
MUTE_CIRCUIT
HEADPHONE CONNECTOR
AV2 BYPASS AUDIO OUTPUT
AV1 BYPASS AUDIO OUTPUT
在IC底部同信号地连接
AMP_+12V
AMP_GND
+5V
OPAV120
OP1VREF
OPVREF
NJM4558 OPA
CS4334 2-CH AUDIO DAC SOP8/SMD
DIP12/WH/P2.0/R
12x1 W/HOUSING R.A
DIP12/WH/P2.5/R
BCK-4235 (22UH)
YDAT38
TTE SHENZHEN R&D CENTER
MT8202
Size C
Document Number 2006-5-26
Rev YWX
Date: Monday, July 23, 2007
Sheet 11 of 14


Panel_Power
R291
10k
R292
10k
PWM1
Q31
GPIO5
Q32
PDTC143ZT
SOT23/SMD
LVDS_GND
LVDS OUT
PWM_PANEL
RN33 33x4
RN34 33x4
RN35 33x4
RN36 33x4
RN37 33x4
JP11
FI-SE30P-HF
LVDS/30P/P1.25/S
+12V +5V
L44
FB
BEAD/SMD/0805
L45
NC
BEAD/SMD/0805
CE95
220uF/16v
C175
0.1uF
C0603/SMD
F1
5A/32v
FUSE/SMD 0603
U19
SI4943
R294
22k
R293
0
LO = > LVDS POWER OFF
HI = > LVDS POWER ON
R296
2k
Q16
2N3904
SOT23/SMD
CB181
0.1uF
TU_CVBS0
TU_AURO
TU_AULO
+12V
GND
[12,14]
[11,12,14]
[11,12,14]
[1,2,9,10,11,12,14]
LVDS_GND [2]
GNDA [1,3,4,8,9,11,14]
AADCVSS [1,3,8,9,10,11,12,14]
VFE_GND1 [2,3,4,8,9,10]
DV33B [7,8,9,12,13,14]
+5V [1,2,4,6,8,9,10,11,12,13,14]
CLK1+ [3]
CLK1- [3]
CLK2+ [3]
CLK2- [3]
AP[0..7] [3]
AN[0..7] [3]
DV33B [7,8,9,12,13,14]
C6 [3,12]
TUNER+5V
R3
3K
CE197
22uF/10v/47uF
C181
NC
R5
47
Q1
2N3904
R520
20K
R521
51
R522
330
R523
75/NC
TU_CBO_GND
L1
FB
To: SCART1
Tuner CVBS Direct Output
L79 10uH/0603
FB TUNER+5V
R16
47
Q3
2N3904
R18
75
R19
330
R20
75
TU_CVBS_SW
To: 8202
AVCVBS0
Tuner CVBS Switching Output
SCL_V50
SDA_V50
ADC_IN3 [3]
ADC_IN4 [3]
R163
10K
Tuner_Reset
C6
Q33
PDTC143ZT
SOT23/SMD
TP59
TP60
R2
100
R1
100
C38
0.1uF
C0402/SMD
C39
0.1uF
C0402/SMD
FROM Tuner
V2
TUMPX1
R212
0
C139
10nF
MPX1
C48
1.8pF
AADCVSS
TUMPX2
R215
39K
R216
39K
CE70
47uF/16V
MPX2
C143
15pF
C144
15pF
Tuner Interface
JP6
SCL_V50
SDA_V50
TUNER+5V
VFE_GND1
TU_CVBS1
SIF1
TU1_MONO
VFE_GND1
Tuner_Reset
TUMPX1
TUMPX2
10x2
DIP10X2/W/H/P2.0/4504
2006-1-4
+5V +12V
L11 NC BEAD/SMD/0805
L9 FB
BEAD/SMD/0805
C52
0.1uF
C0402/SMD
C53
4.7uF/10v
C0805/SMD
TUNER+5V
AADCVSS
TTE SHENZHEN R&D CENTER
Title
MT8202
Size
C
Document Number
2006-5-26
Rev
YWX
Date:
Monday, July 23, 2007
Sheet
12
of
14

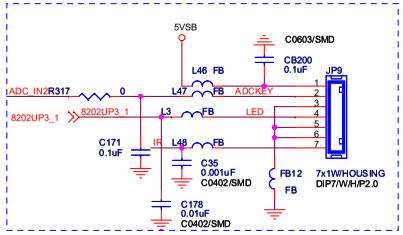
ADC_IN2 ADC_IN2 [3,11]

IR IR [3,10,13]
PWM0 PWM0 [3]
PWM1 PWM1 [3]
PWM_PANEL PWM_PANEL
DV33B DV33B [7,8,9,12,13,14]
+5V +5V [1,2,4,6,8,9,10,11,12,13,14]



Back Light circuit

ADC KEYPAD 8 KEY



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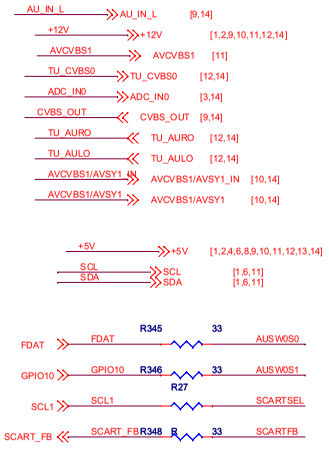
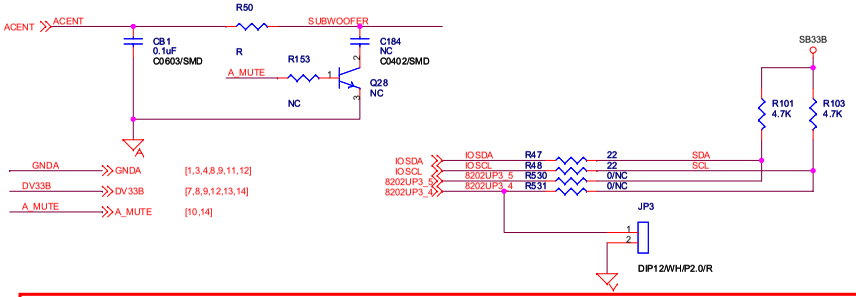
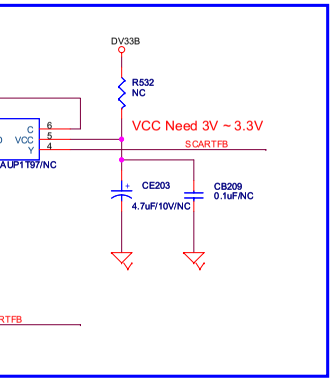
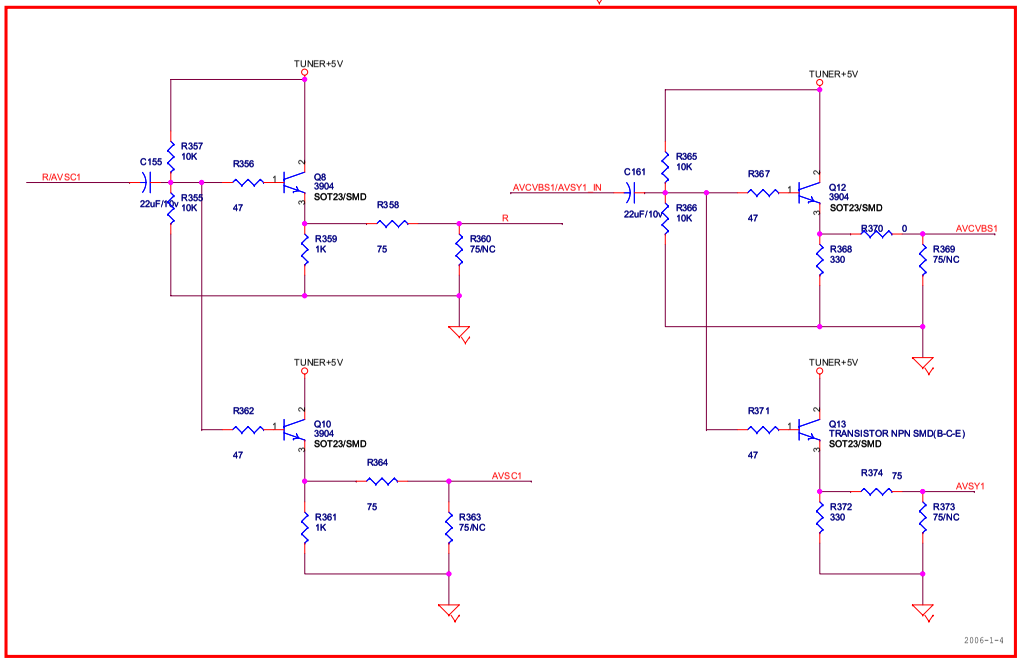
Title: MT8202			
Size: C	Document Number: 2006-5-26		Rev: YWX
Date: Monday, April 09, 2007	Sheet 13 of 14		



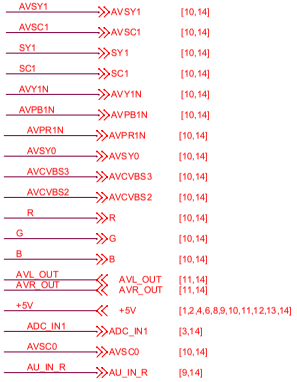






GPIO DECRIPTION

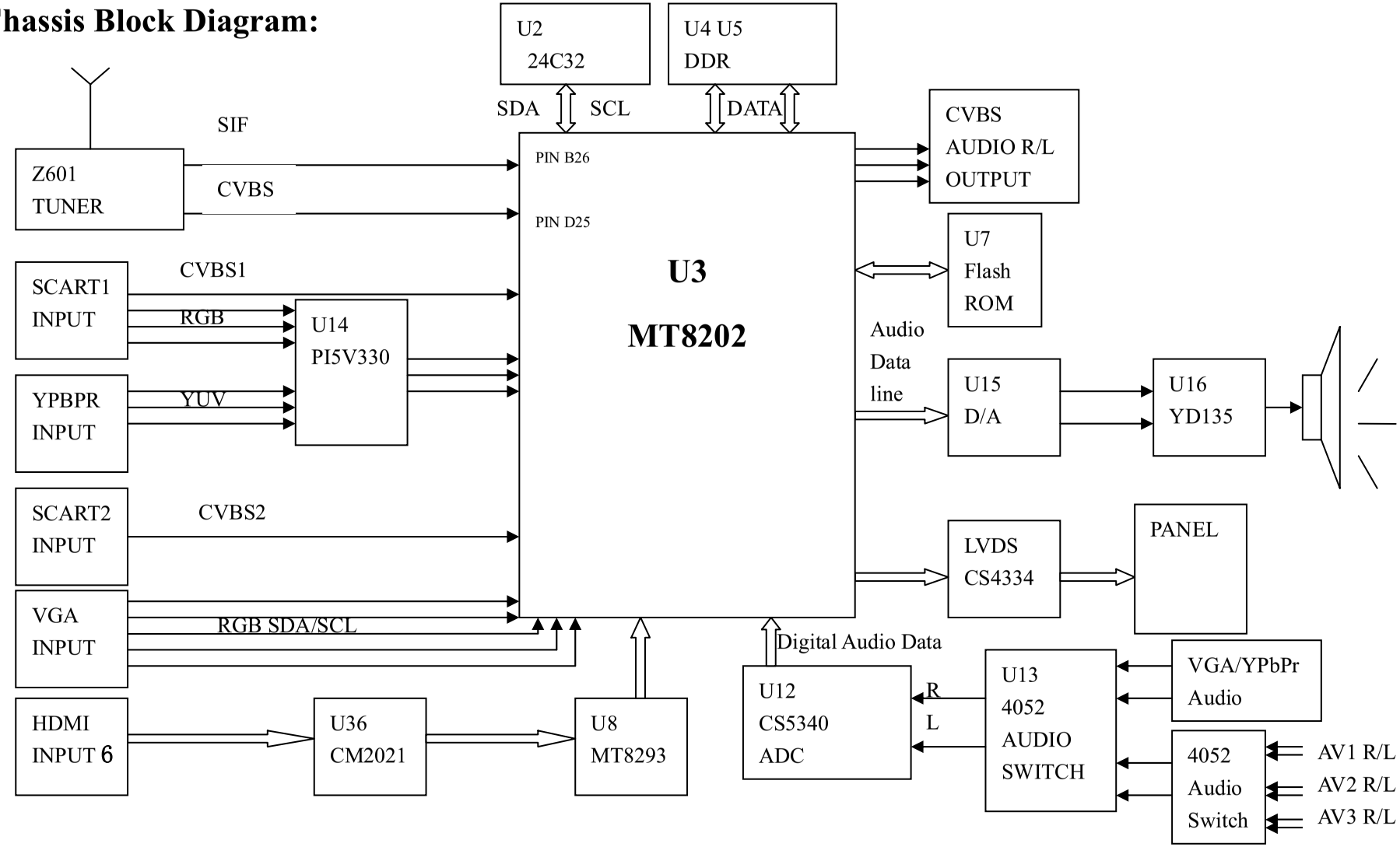
- ERO3/GPIO : LVDS GPIO
- ERO2/UP3_5 : SDA
- ERO1/UP3_1 : LED1
- ERO0/UP3_0 : MAIN POWER SWITCH
- DE/GPIO : LVDS GPIO
- VCLK/GPIO : LVDS GPIO
- UP3_4 : SCL
- AOSDATA5/GPIO1 : AUDIO AMPLIFIER CONTROL
- GPIO2 : LVDS POWER SW
- GPIO3 : DTV_CE
- GPIO4 : EEPROM WRITE PROTECT
- GPIO5/TXD :TO PANEL ENABLE
- GPIO6/RXD : BACK LIGHT ON/OFF
- GPIO7 : SWITCH HEF4052
- GPIO8 : SWITCH HEF4052
- GPIO9 : SWITCH AV BOARD HEF4052
- GPIO10 :SWITCH AV BOARD HEF4052
- GPIO11 : +12V POWER CONTROL
- GPIO12 : NONE USE
- GPIO13 : FOR PDP CONTROL
- GPIO14 : AUDIO AMP SLEEP
- GPIO15 : AUDIO AMP MUTE
- GPIO16 : RGB/YUV SWITCH
- GPIO17 : HDMI SCDT
- GPIO18 : HDMI CABLE DETECT
- SDA : SDA (TTL MODE)
- SCL : SCL (TTL MODE)
- GPIO/PWM0 : DIMMING
- GPIO/PWM1 :TO PANEL EXTERNAL PWM
- OUT_27Mhz/GPIO : 27Mhz TO MT8293
- DE_SOG/GPIO : HDMI RESET
- CEN_DVI/GPIO : HDMI_CEN
- SDA0 : EXTERNAL DTV TXD
- SCL0 : EXTERNAL DTV RXD
- SDA1 : TVB_CE
- SCL1 : SCARTSEL
- ADCIN0 : SCART
- ADCIN1 : SCART
- ADCIN2 : ADCKEY
- ADCIN3 : TUNER1
- ADCIN4 : TUNER2
- P1: NO USE
- P3: NO USE
- P4: NO USE
- R1: NO USE
- R2: FOR USB



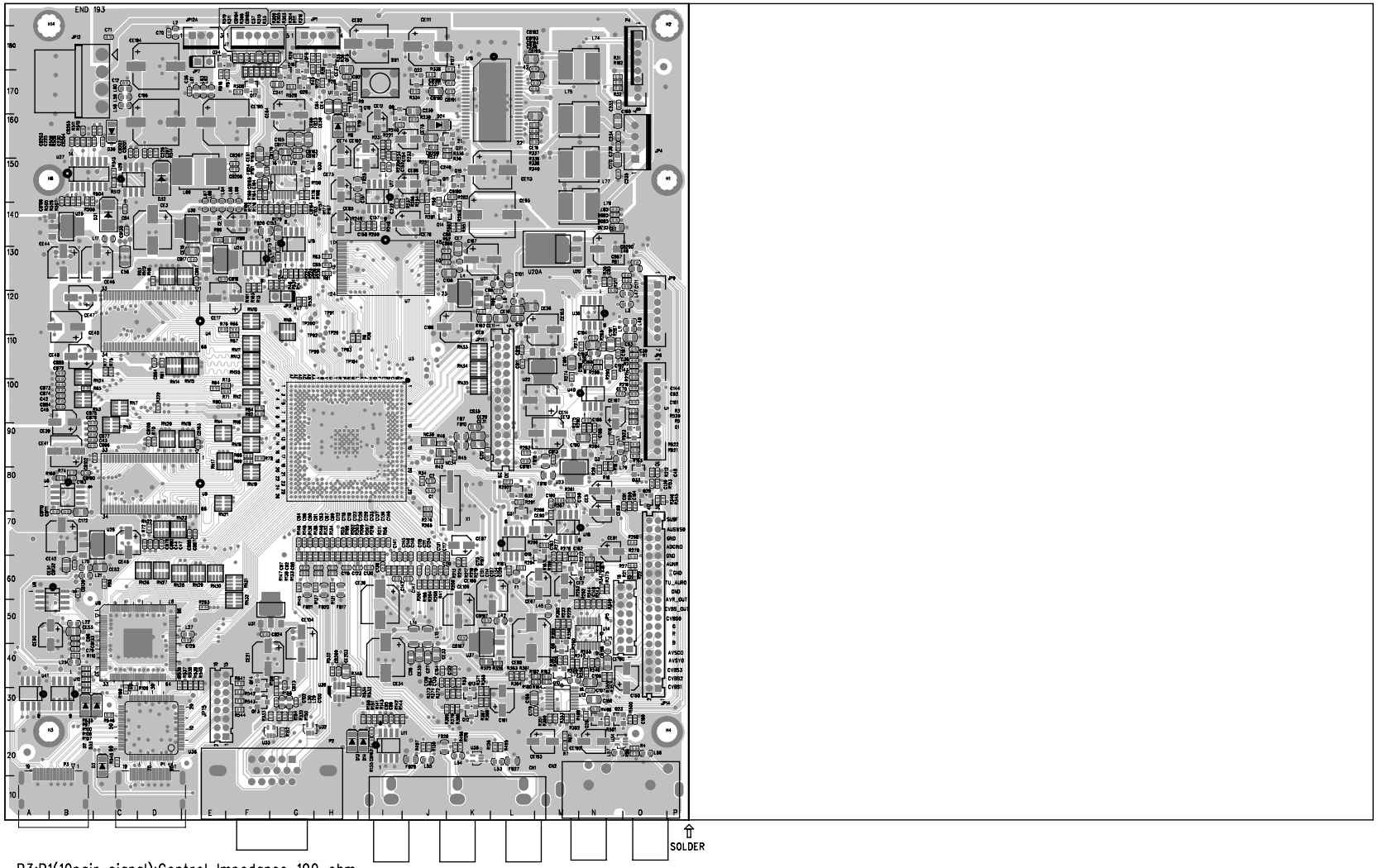
TTE SHENZHEN R&D CENTER			
Title: MT8202			
Size: C	Document Number: 2006-5-26		Rev: YWX
Date: Monday, July 23, 2007	Sheet 14 of 14		

6、 Block Diagram

Chassis Block Diagram:

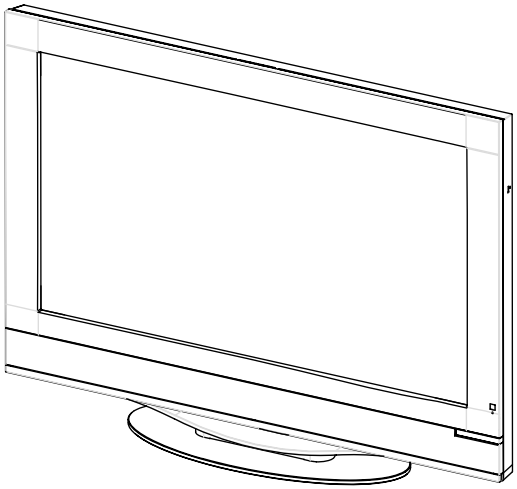


7.PCB Layout

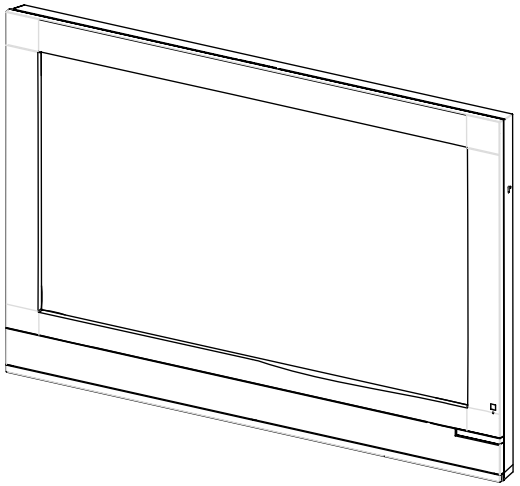

END 193
SOLDER
P3;P1(10pair signal):Control Impedance 100 ohm

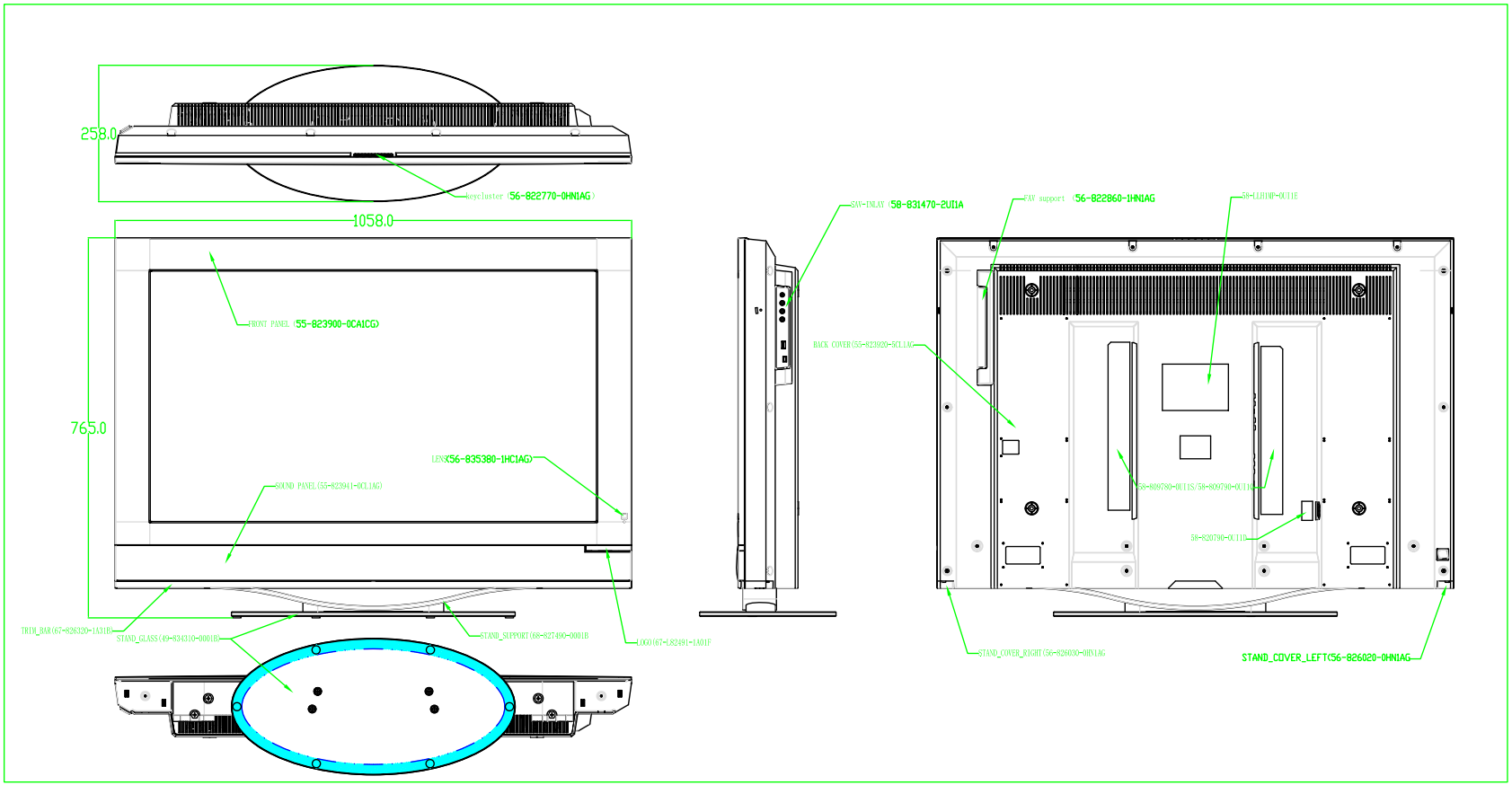
p3;p1(10pair signal):Control Impedance 100 ohm

with stand: 1058.0X765.0X270.0

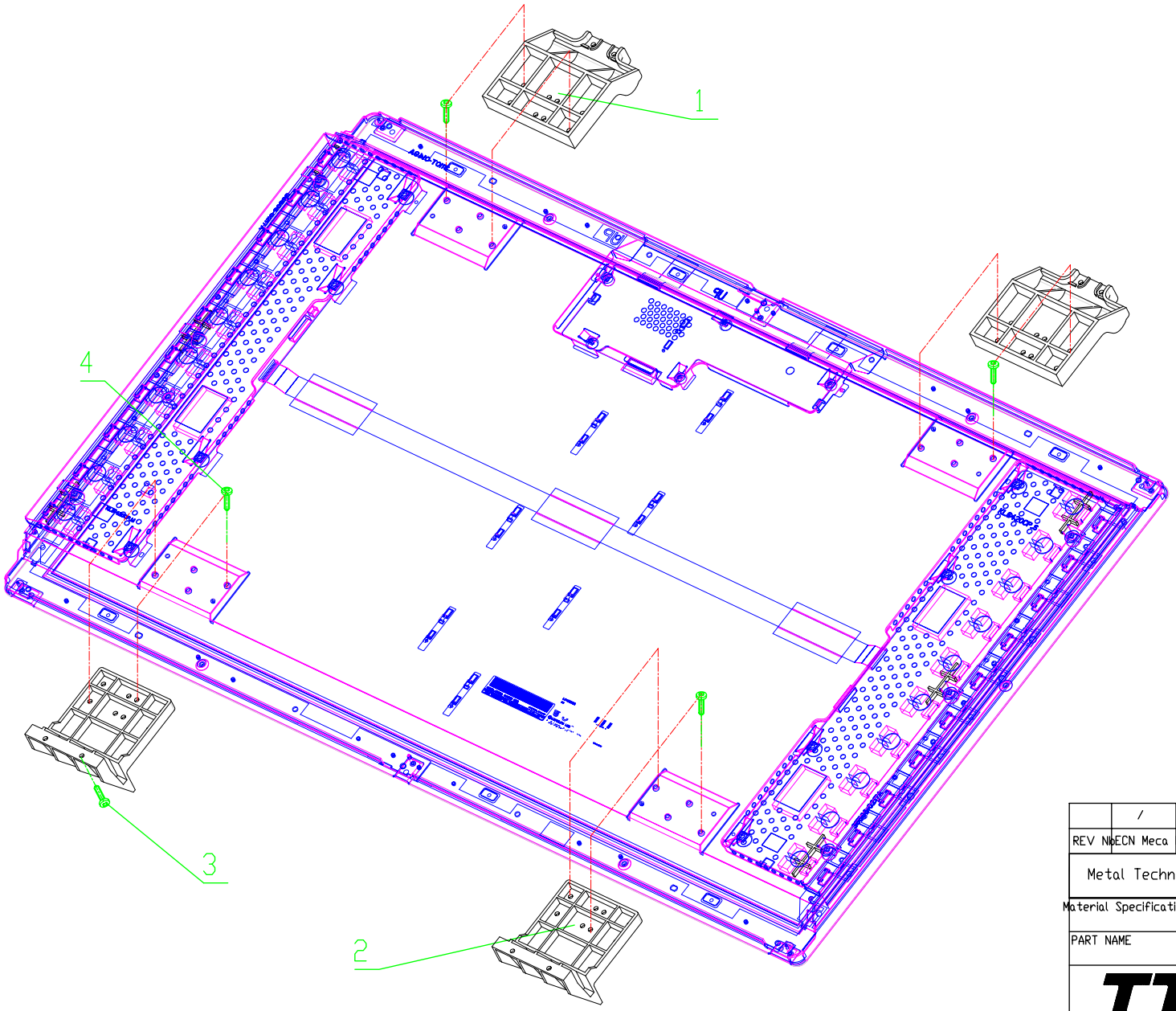


no stand: 1058.0X710.6X115.5





1	62-826220-0HD	LPL_FASTENER_TOP	LPL屏上背部支撑	2	
2	62-825590-0HJ	LPL_SUPPORT_BOTTOM	42LPL屏支架(下中)	2	
3	63-B40150-AB3G	S/T SCREW B 4 X 15 AB	螺钉B4X15AB	8	MTG PANEL-SUPPORT & BACK-COVER
4	64-B40080-304G	TRIANGLE M/C SCREW M 4 X 8	机制螺钉M4X8	16	MTG PANEL-SUPPORT & LCD-PANEL
5					

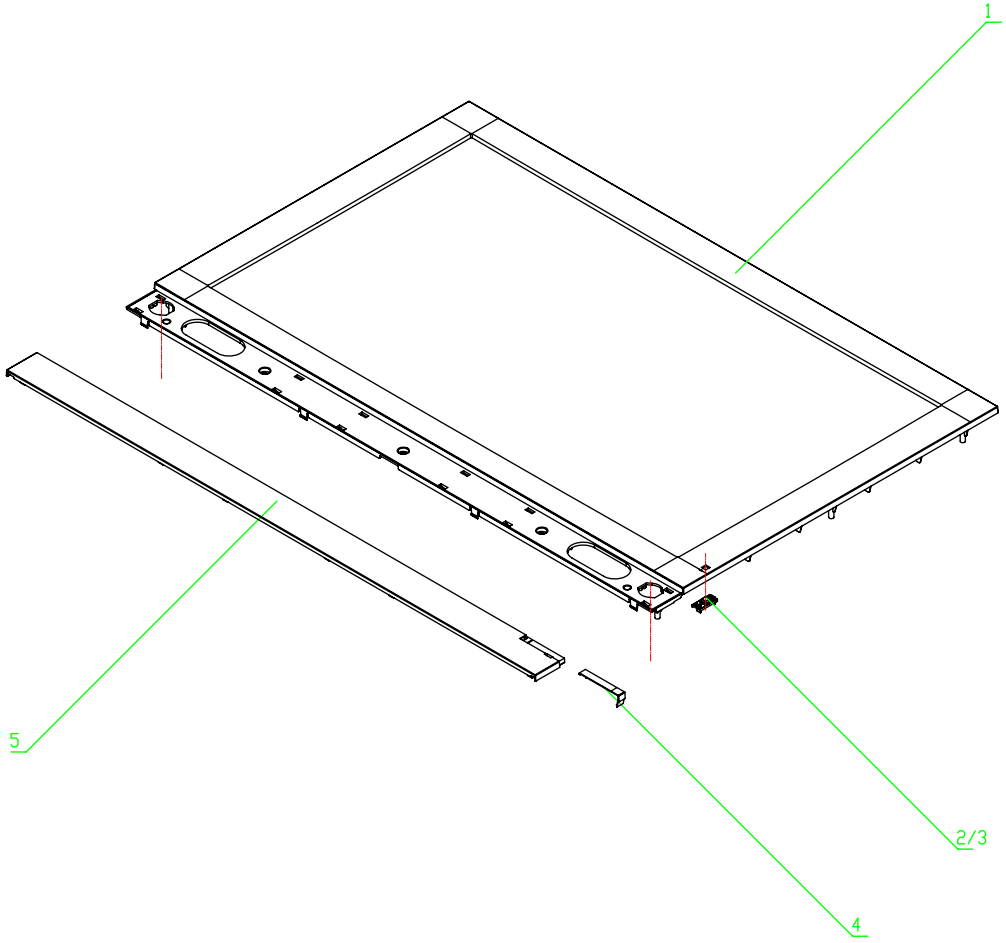


REV No.	ECN Meca No.	Initiator	SOURCE RELEASE/TOOL RELEASE DISPATCH/Modification description	Imp.	Date	Designer
	/					

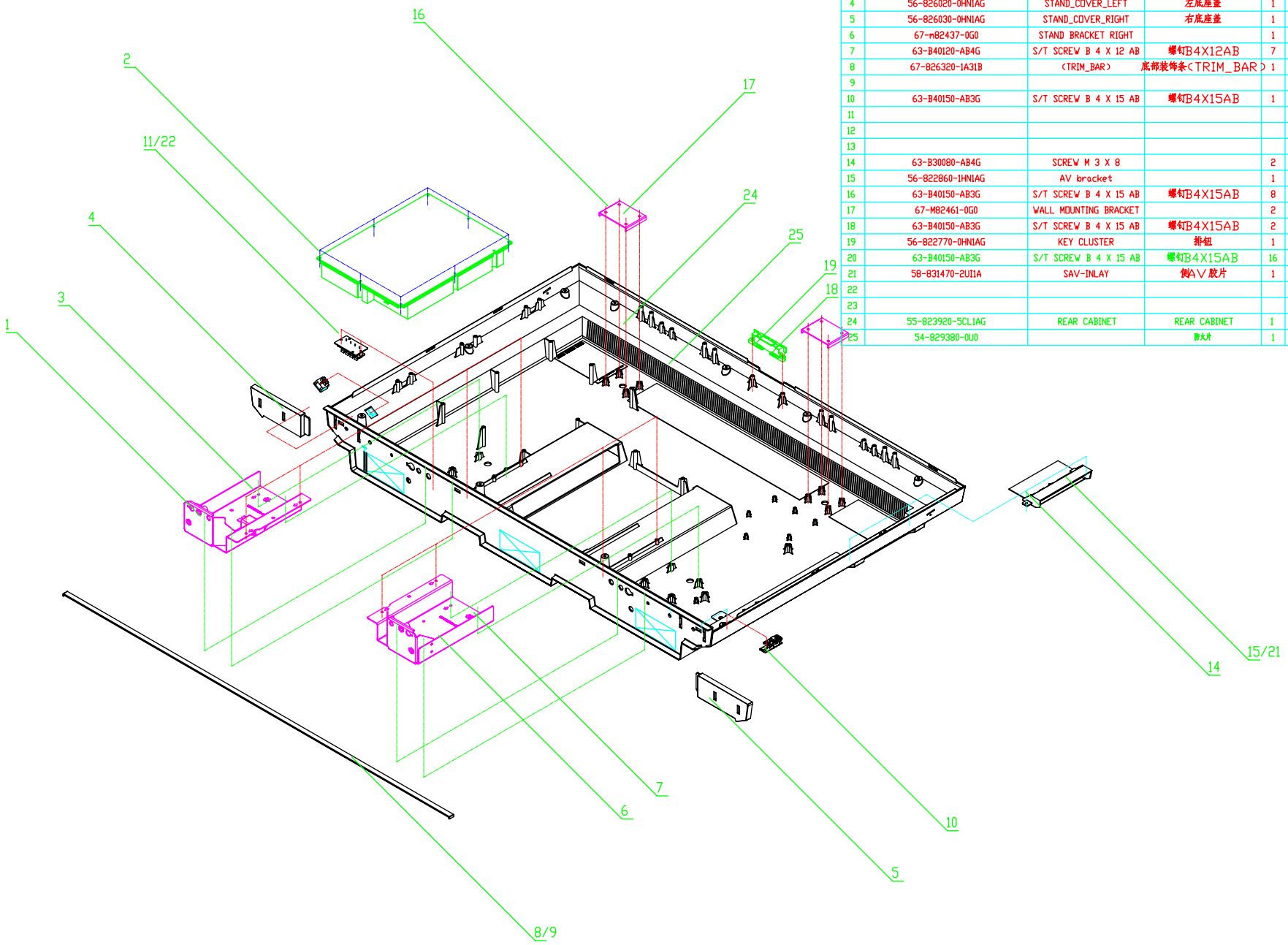
Metal Technology	Lenght ±0,5mm (<= 1000mm (CN=±0,2) ±1mm > 1000mm (CN=±0,4) Internal cut punching ±0,1 (1 time); ±0,5 (>1 time)	Cutting Tool : with blades ±0,3mm (Dim <=300 SWISS ±0,1mm (Dim <=300)

Material Specification Ref:	PJO Structured Designation:	PJO TDCOM No.	PJO No/Name:
Draw. No			
PART NAME: Panel Ass.	Designer:	DATE:	TCL No:
TTE Mechanical development	CHECK.	DATE:	Sheet 4/4
	APPROVE.	DATE:	SCALE 1:1
			Weight

1	55-823900-0CA1CG	FRONT PANEL	前壳	1	
2				1	
3	56-835380-1HC1AG	Lens	透镜	1	
4	67-L82491-1A01F	LOGO	铭牌	1	
5	55-823940-0CL1AG	SOUND-PANEL	音箱面板	1	
6	54-701940-00X		黑绒纸	4	Side of the panel
7	63-B40120-AB4G		螺钉	5	Front Panel&Sound Par
8	63-S40120-BT4G		螺钉	1	MTG SPEAKER & FRONT-



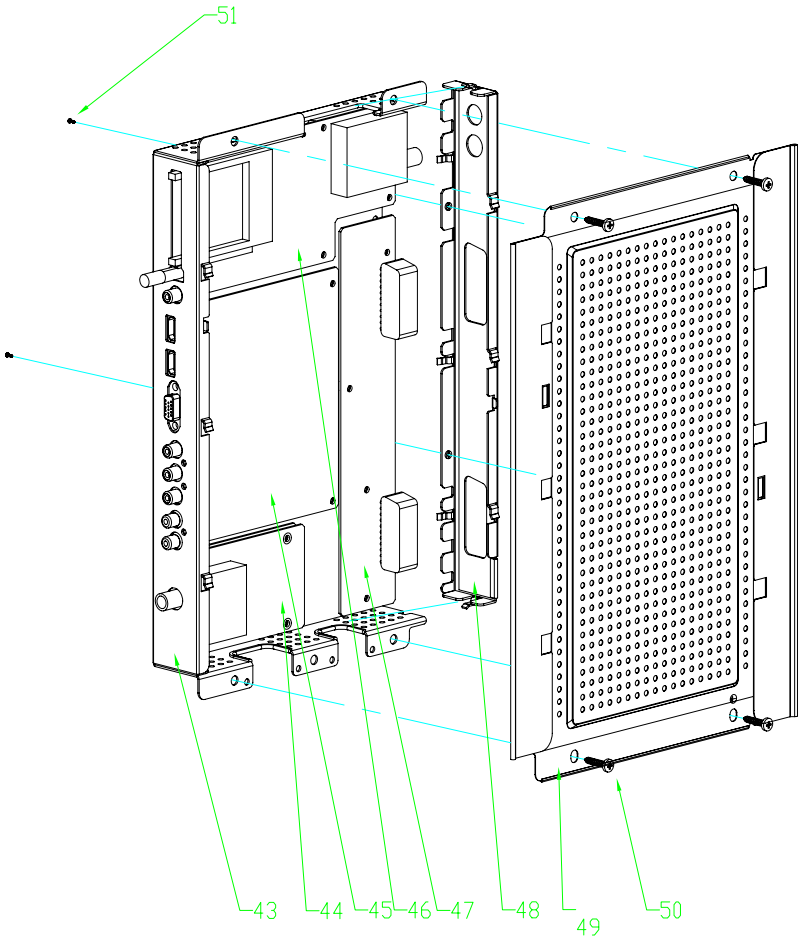
REV	N°ECN	Mecs	Unit(s)	SOURCE RELEASE/TOOL RELEASE DISPATCH/Modification description		Date	Designer
Metal Technology			Lenght ±0,5mm (< 1000mm (CN=±0,2) ±1mm (> 1000mm (CN=±0,4) Internal cut punching ±0,1 (1 time))		Cutting Tool : with blades ±0,2mm (2m (<300 SWISS ±0,1mm (2m (<300		
Material Specification Ref			PLM Structured Designation	TDCCM Nb.	P.M Nb/Name	Draw. Nb	
PART NAME	Front Panel Ass.		Designer:	DATE:		TCL Nb:	
TTE Mechanical development			CHECK:	DATE:		Sheet	3/4
			APPROVE:	DATE:	SCALE 1:1	Weight	

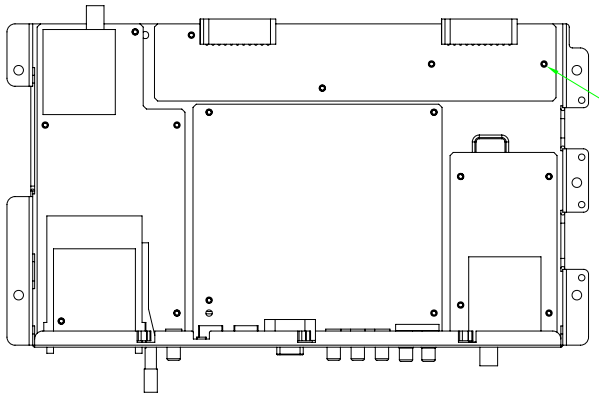


1	67-m82436-0G0	STAND BRACKET LEFT		1	
2	63-B40150-AB3G	S/T SCREW B 4 X 15 AB	螺钉B4X15AB	5	MTG POWER SUPPLY & BACK-COVER
3	63-B40120-AB4G	S/T SCREW B 4 X 12 AB	螺钉B4X12AB	7	MTG STAND_SUPPORT & BACK-COVER
4	56-826020-0HN1AG	STAND_COVER_LEFT	左底座盖	1	
5	56-826030-0HN1AG	STAND_COVER_RIGHT	右底座盖	1	
6	67-m82437-0G0	STAND BRACKET RIGHT		1	
7	63-B40120-AB4G	S/T SCREW B 4 X 12 AB	螺钉B4X12AB	7	MTG STAND_SUPPORT & BACK-COVER
8	67-826320-1A31B	<TRIM_BAR>	底部装饰条<TRIM_BAR>	1	
9					
10	63-B40150-AB3G	S/T SCREW B 4 X 15 AB	螺钉B4X15AB	1	MTG IR-PCB & BACK-COVER
11					
12					
13					
14	63-B30080-AB4G	SCREW M 3 X 8		2	MTG FAV-SUPPORT & BACK-COVER
15	56-822860-1HN1AG	AV bracket		1	
16	63-B40150-AB3G	S/T SCREW B 4 X 15 AB	螺钉B4X15AB	8	MTG VESA BRACKET & BACK-COVER
17	67-M82461-0G0	WALL MOUNTING BRACKET		2	
18	63-B40150-AB3G	S/T SCREW B 4 X 15 AB	螺钉B4X15AB	2	MTG Keycluster & BACK-COVER
19	56-822770-0HN1AG	KEY CLUSTER	排钮	1	
20	63-B40150-AB3G	S/T SCREW B 4 X 15 AB	螺钉B4X15AB	16	MTG FRONT-PANEL & BACK-COVER
21	58-831470-2UI1A	SAV-INLAY	侧AV胶片	1	
22					
23					
24	55-823920-5CL1AG	REAR CABINET	REAR CABINET	1	
25	54-829380-0U0		防火片	1	

REV	N°ECN	Mecha	Unit/date	RELEASE/TOOL RELEASE DISPATCH/Modification description		Date	Designer
Metal Technology		Lenght ±0,5mm (< 1000mm (CN=±0,2) ±1mm (> 1000mm (CN=±0,4) Internal cut punching ±0,1 (1 time))		Cutting Tool : with blades ±0,2mm (2m <=300 ±0,3mm (2m <=300 ±0,5 (1 time) SWISS			
Material Specification Ref		RID Structured Designer		TDCOM Nb.	RID Nb/Name	Drwg. Nb	
PART NAME	R.C.Ass.	Designer		DATE		TCL Nb	
TTE Mechanical development		CHECK.		DATE		Sheet	2/4
		APPROVE.		DATE	SCALE 1:1	Weight	

REV NO.	NOTES	DATE	SIGNATURE

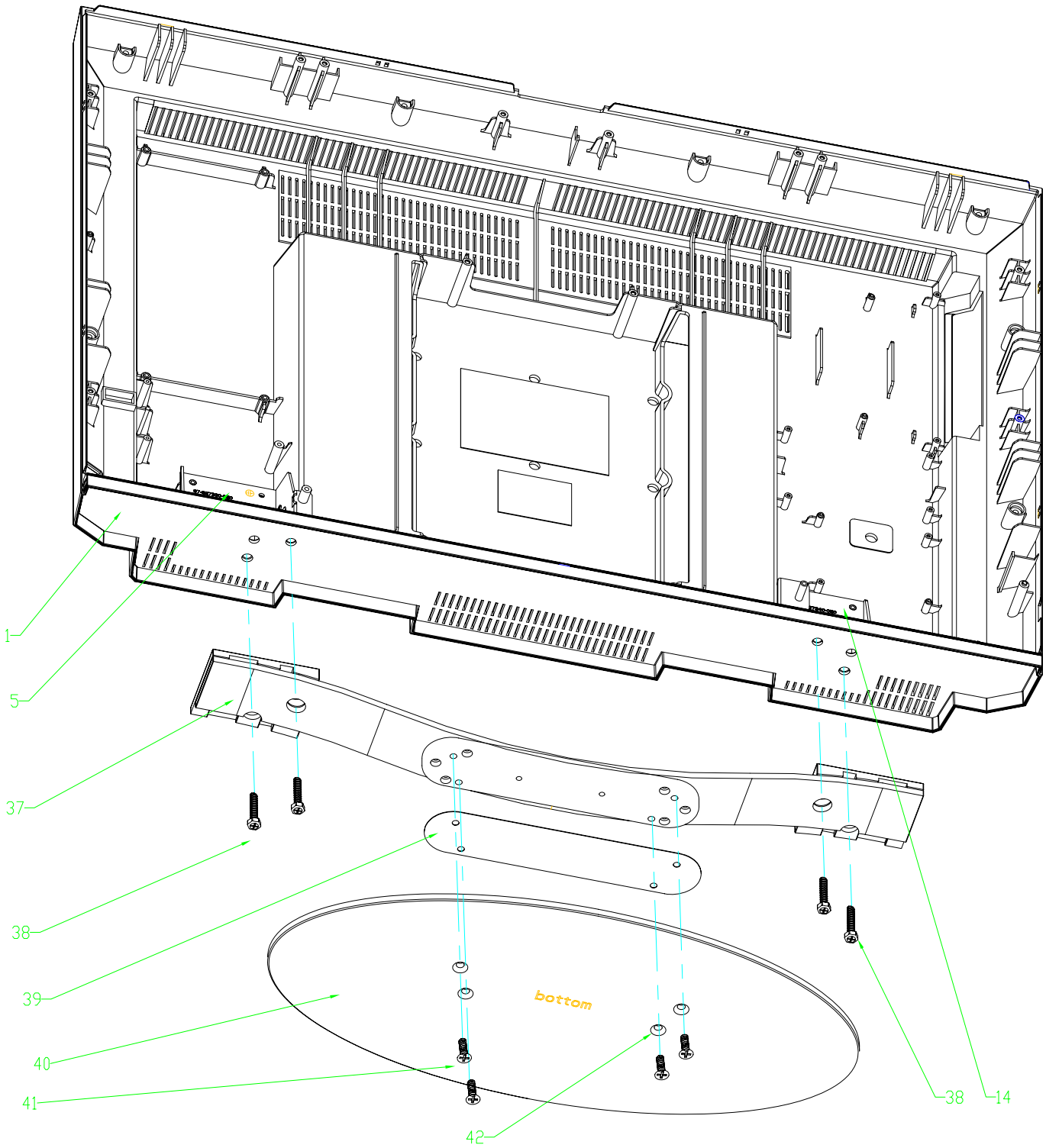




ITEM	NAME	PART NO.	QTY.	REMARK
54	M/C SCREW Z-3 X 8	64-B30060-304G	17	W/ GASKET & PCB
51	M/C SCREW Z-3 X 8	63-B30060-1040A	2	W/ GASKET & TERMINAL PLATE
50	S/T SCREW B-4 X 15	63-B40150-MB3G	4	W/ GASKET & BACK COVER
49	TOP SHIELDING	67-S81587-3E0	1	
48	TERMINAL PLATE	67-S81588-MH0	1	
47	AV BOARD	T8-MB61DL-VV1	1	
46	DVBT BOARD	T8-MB61DL-MAN	1	
45	DATA BOARD	T8-MB61DL-DLY	1	
44	TUNER BOARD	T8-MB61DL-TCC	1	
43	BOTTOM SHIELDING	67-S82482-MH0	1	

DRAW		MODEL NO.	LCD42M61	MODEL NO.
CHECK			NH21	
SIGN			EXPLODE DRAWING	
APPROVE				

REV NO.	NOTES	DATE	SIGNATURE



ITEM	NAME	PART NO.	QTY.	REMARK
42	CUSHION	59-830250-000	4	PLACED BETWEEN BODY SIDE AND SET
41	M/C SCREW F-6 X 20	64-F60200-104G	4	BET METAL SUPPORT & GLASS STAND
40	GLASS STAND	49-834310-0001B	1	
39	CUSHION	59-827290-001	1	
38	M/C SCREW H-8 X 20	64-H83000-102G	4	BET METAL SUPPORT & BACK COVER
37	METAL SUPPORT	68-827490-0001B	1	
14	STAND_SUPPORT_LEFT	67-MS2436-060	1	
5	STAND_SUPPORT_RIGHT	67-MS2437-060	1	
1	BACK COVER	55-823920-5CL1AG	1	

DRAW			MODEL NO.	LCD42M61	MEDIA NO.
CHECK					
STDS			TTE Mechanical development	EXPLODE DRAWING	
APPROVE					

9.Spare Parts

PART NO.	SEPC	QTY	LOCATION	UNIT
25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	1	C27	PC
25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	1	C6	PC
25-BCB101-M1X	CAP. ELEC 100 UF 16V +/-20%	1	C5	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	CE28	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	CE20	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	CE15	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	CE16	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	CE17	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	CE18	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	CE19	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	C3	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	C4	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	C25	PC
25-BCB220-M1X	CAP. ELEC 22 UF 16V +/-20%	1	C26	PC
25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%	1	CE2	PC
25-BCB471-M1X	CAP. ELEC 470 UF 16V +/-20%	1	CE4	PC
40-MTD002-AVD2XG	TV PCB AV BD R=Y	1		PC
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C110	PC
25-BCB100-M1X	CAP. ELEC 10 UF 16V +/-20%	1	C112	PC
40-MTDM61-SIC1XG	P.C.B SIDE AV BD	1		PC
25-BBB221-M1X	CAP. ELEC 220 UF 10V +/-20%	1	C602	PC
25-BBB471-M1X	CAP. ELEC 470 UF 10V +/-20%	1	C605	PC
25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%	1	C648	PC
25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%	1	C601	PC
25-BCB470-M1X	CAP. ELEC 47 UF 16V +/-20%	1	C615	PC
34-R102K2-0EX	COIL CHOKE 1000UH/+/-10% EL0606RA-102K-P	1	L603	PC
34-R102K2-0EX	COIL CHOKE 1000UH/+/-10% EL0606RA-102K-P	1	L604	PC
34-R102K2-1EX	COIL PL - 1000 UH +/-5%	1	L608	PC
40-32V6GM-TUI2XG	P.C.B TUNER BD	1		PC
54-701940-00X	FELT TAPE 870MMX20MMX0.3MM	4		PC
55-823900-0CA1CG	PRI FRONTPANEL 42M61NH21 BLACK R=Y	1		PC
55-823941-0CL1AG	TV DEC GRID SPEAKER PANEL -- 00 1A 00 R=	1		PC
63-B40120-AB4G	S/T SCREW 4X12	5		PC
46-40276H-01X03G	HS 1PIN(400MM)Y0701003.2.3	1		PC
46-KR080T-03E01G	HS 3PIN VH-3(800MMM)Y0701003.1.4	1		PC
47-PWS024-TX0	POWER SOCKET 03GEEG3E(04)	1		PC
56-835380-1HC1AG	TV DEC IR LENS LENS DARK GREY 02 1A 01 R	1		PC
67-L82491-1A01F	TV DEC INLET BR BK 00 00 R=Y	1		PC
55-823920-5CL1AG	REAR CABINET	1		PC
56-826020-0HN1AG	COVER PANEL_L	1		PC
56-826030-0HN1AG	COVER PANEL_R	1		PC
58-809780-0UI1X	TV PRI OVERLAY REAR AV -- 00 00 R=Y	1		PC
58-809790-0UI1Q	INLAY_R	1		PC
58-820790-0UI1D	INLAY	1		PC
59-833950-000	RUBBER PAD(RIGHT)	1		PC
59-833960-000	RUBBER PAD(LEFT)	1		PC

63-B30080-AB4G	S/T SCREW B 3 X 8 AB	2		PC
63-B40120-AB4G	S/T SCREW 4X12	14		PC
63-B40150-AB3G	SCREW-ST 4MM 15MM ISO 62 R=N	2		PC
64-B30080-304G	TRIANGLE M/C SCREW B 3 X 8	2		PC
67-M82436-0G0	BRACKET(L)	1		PC
67-M82437-0G0	BRACKET(R)	1		PC
07-DVBTI5-NC3G	TUNER TD1316ALF/IHP-3	1	U21	PC
25-BCB102-M1X	CAP. ELEC 1K UF 16V +/-20%	1	C211	PC
25-GCA102-M1X	CAP. ELEC 1000 UF 16V +/-20% 105	1	C213	PC
46-35199W-03XG	PIN BASE *3 PITCH=2.0MM	1	J7	PC
46-35199W-04XG	CONN.PH-4A 4PIN PITCH=2.0MM	1	J1	PC
46-35199W-05XG	CONN.PH-5A 5PIN PITCH=2.0MM	1	J6	PC
46-38605W-12XG	PIN BASE TU2005WNV-2X6	1	J3	PC
46-39720W-20XG	BASE A1272WV-2X10P	1	J9	PC
47-PCM003-XX0	PCMCIA SOCKET 135-1455100901	1	J4	PC
47-RCA213-XX0G	RCA SOCKET 1PIN AV-3.2-1W50	1	JP1	PC
48-TAC001-XX0	TACT SWITCH	1	SW1	PC
64-B20140-102G	MACHINE SCREW (M2×14)	1	T4	PC
64-B20140-102G	MACHINE SCREW (M2×14)	1	T3	PC
64-B20140-102G	MACHINE SCREW (M2×14)	1	T2	PC
64-B20140-102G	MACHINE SCREW (M2×14)	1	T1	PC
71-268390-0A0AF	LABEL (QC) GREEN	1		PC
02-IRR001-XX6	IR RECEIVER MODULE H4M533AA5100	1	U601	PC
14-LED03R-XX1	LED RED Φ3MM FO203	1	LED601	PC
46-35135W-05XG	PIN BASE PH-05AW	1	J602	PC
59-830360-000	SLEEVE TUBE	1	FOR LED601	PC
59-836860-000	TV RAW CUSHION RUBBER 00 00 R=N	1	FOR U601	PC
46-35135W-03XG	PIN BASE PH-03AW	1	J601	PC
48-TAC020-XX0	SWITCH TACT TSAB-1	1	K4	PC
48-TAC020-XX0	SWITCH TACT TSAB-1	1	K2	PC
48-TAC020-XX0	SWITCH TACT TSAB-1	1	K3	PC
48-TAC020-XX0	SWITCH TACT TSAB-1	1	K1	PC
48-TAC020-XX0	SWITCH TACT TSAB-1	1	K5	PC
48-TAC020-XX0	SWITCH TACT TSAB-1	1	K6	PC
46-33079W-04XG	PIN BASE *4 TJC3-4A	1	JP4	PC
46-33333W-04XG	PIN BASE VH-AW	1	JP12	PC
46-35199W-03XG	PIN BASE *3 PITCH=2.0MM	1	JP12A	PC
46-35199W-04XG	CONN.PH-4A 4PIN PITCH=2.0MM	1	JP1	PC
46-35199W-05XG	CONN.PH-5A 5PIN PITCH=2.0MM	1	J7	PC
46-35199W-06XG	.PH-6A 6PIN PITCH-2.0MM	1	P4	PC
46-35199W-07XG	CONN.PH-7A PITCH=2.0MM 7PIN	1	JP9	PC
46-35199W-10XG	CONN. PH-10 10PIN PITCH=2.0MM	1	JP6	PC
46-38605W-16XG	PIN BASE TU2005WNV-2X8	1	JP5	PC
46-38605W-30XG	PIN BASE TU2005WNV-2X15	1	JP11	PC
46-38605W-40XG	PIN BASE TU2005WNV-2X20	1	JP14	PC
47-RCA123-XX1G	RCA SOCKET AV-3.2-2WB40	1	CN2	PC
47-RCA125-XX1G	RCA SOCKET AV-3.2-3W-051	1	CN1	PC

47-VGA002-XX0	VGA JACKET D-SUB-15WP	1	P2	PC
56-822770-0HN9BG	TV PAI KEY 32M61NH21 A8219 R=N	1		PC
56-822860-1HN1AG	BRACKET SIDE AV	1		PC
58-831470-2UI1C	TV DEC OVERLAY SIDE AV INLAY -- R=Y	1		PC
46-35199W-07XG	CONN.PH-7A PITCH=2.0MM 7PIN	1	P602	PC
46-38605W-40XG	PIN BASE TU2005WNV-2X20	1	P601	PC
47-SCA001-XX2G	SCART SOCKET	1	SCART1	PC
47-SCA011-XX0G	SOCKET SCART-21W-G3	1	SCART2	PC
46-35199W-06XG	.PH-6A 6PIN PITCH-2.0MM	1	P701	PC
46-35199W-07XG	CONN.PH-7A PITCH=2.0MM 7PIN	1	P702	PC
47-EAR002-XX0	EARPHONE SOCKET CK3-3.5-9WK-B	1	P4	PC
47-RCA019-XX5G	RCA SOCKET AV-3.2-3WB116	1	P1	PC
34-A120J2-1IX	COIL. 12uH, +/-5%	1	L609	PC
45-OSC4M0-0N1	CRYSTAL 4MHZ	1	X601	PC
45-SAWD94-53D	SAW FILTER D9453D	1	X611	PC
45-SAWK72-70M	SAW FILTER EPCOS K7270M	1	X610	PC
46-35199W-10XG	CONN. PH-10 10PIN PITCH=2.0MM	1	P601	PC
35-FB0723-00X	FERR BEAD	1		PC
35-FB0816-00X	MAGNETISM RING GUFR16X13X8	1		PC
35-FB0927-00X	MAGNETISM RING ZCAT2035-0930A	1	FOR AV CORD.	PC
46-FL030T-16X01G	HS 16PIN TCL1640	1		PC
46-CV060T-04A01G	HS 4PIN TCL1529	1		PC
46-FF015T-10XG	MT02-TUNER CONECTER Y061004.4	1		PC
46-FF090T-06G02G	HS 6PIN TCL1524	1		PC
46-FF090T-07G01G	HS 7PIN TCL1527	1		PC
46-FF120T-07M01G	HS 7PIN TCL1528	1		PC
46-FJ600C-LG2L1G	LVDS WIRE JTCL0413	1		PC
46-LL017T-40X01G	HS 2X20PIN Y0602124	1	FORP601	PC
63-B30080-AB4G	S/T SCREW B 3 X 8 AB	3		PC
64-B30060-304G	TRIANGLE M/C SCREW B 3 X 6	2		PC
66-702620-0E2G	SCREW POST	2		PC
51-FC0182-0TU01G	POWER CORD 1820MM	1		PC
35-FB0723-00X	FERR BEAD	2		PC
35-FB0927-00X	MAGNETISM RING ZCAT2035-0930A	1	FOR AV CORD	PC
35-FB1128-00X	FERR. BEAD ZCAT2132-1130(BK)	2	FOR POWER CORD	PC
35-FB1615-00X	MAGNETISM RING GB18T25.9X16X15	2	FOR AC CORD	PC
41-40163H-00XG	WIRE LCSAP08600004	1		PC
41-40282H-02X	WIRE LCSAP001AV0404	1		PC
42-61308I-XX2G	SPEAKER YDP613-13TT	2		PC
46-KF100F-14X11G	HS 14PIN TCL1523	1		PC
49-834310-0001B	BASE GLASS	1	STAND GLASS	PC
54-392440-LBB	SIVER PAPER 50MX70MMX0.1MM	0.4	FOR PANNEL	M
54-806940-0U0	SPONGE	5	FOR PANNEL	PC
54-807670-0U0	SPONGE	2	FOR PANNEL	PC
57-KYCL01-0HF	UNI-TIE	7		PC
57-KYWCC1-0UG01	WIRE MOUNT	2		PC
58-827290-00H	BASE PAD	1		PC

59-829370-000	RUBBER PAD	5		PC
59-830250-000	RUBBER PAD	4		PC
63-B40150-AB3G	SCREW-ST 4MM 15MM ISO 62 R=N	1		PC
63-S40120-BT4G	MACHINE SCREW	4		PC
64-B30060-304G	TRIANGLE M/C SCREW B 3 X 6	7		PC
64-B40080-304G	TRIANGLE M/C SCREW B 4 X 8	16		PC
64-F60200-104G	MACHINE SCREW	4		PC
64-H80300-102G	M/C SCREW H 8 X 30	4		PC
67-826320-1A31B	TV DEC INLET BR SILVER 00 00 R=Y	1		PC
68-827490-0001B	TV DEC SUPPORT STAND -- 00 1B 00 R=Y	1	STAND_SUPPORT	PC
72-032M61-EUM1B	OPERATION MANUAL	1		PC
81-LC40B6-PW0	POWER MODULE JSK4338-007	1		PC
90-KQ2109-XJ2	SILICON RUBBER KQ2109L	0.6		G
63-B40150-AB3G	SCREW-ST 4MM 15MM ISO 62 R=N	4		PC
67-M82461-0G0	BRACKET	2		PC
67-M83270-0G0	METAL PART	2		PC
67-M83271-0G0	METAL PART	2		PC
09-55C5V1-DTX	SMD.DIODE BZV55-C5V1	1	D1	PC
09-S2L40U-STX	SMD. DIODE STPS2L40U	1	D2	PC
12-BC847A-0BX	SMD TRANSISTOR BC847A (NPN)	1	Q1	PC
13-303LSN-29B	IC NCP303LSN29T1G	1	U16	PC
13-A1334B-TSB	UDA1334BTS-SSOP16	1	U6	PC
13-AS1117-ADB	IC AS1117-ADX	1	U40	PC
13-C1GU04-GWB	74AHC1GU04-SOT353	1	U23	PC
13-C1GU04-GWB	74AHC1GU04-SOT353	1	U24	PC
13-IC1084-CMB	IC AIC1084-33CM 3.3V (TO-263)	1	U39	PC
13-IMAXSP-2LB	CIMAXSP2L-PQFP128	1	U7	PC
13-K4S281-63B	SDRAM K4S281632I-UC60	1	U3	PC
13-LD1117-18B	1.8V REGULATOR IC LD1117S18TR	1	U28	PC
13-LD1117-33B	IC LD1117 3.3V	1	U37	PC
13-LD1117-50B	5.0V IC LD1117S50TR	1	U32	PC
13-LD1117-50B	5.0V IC LD1117S50TR	1	U30	PC
13-LVC245-PWB	IC 74LVC245APW	1	U11	PC
13-MP9583-DSB	IC DC-DC CONTROLLER MP9583DS-LF-Z	1	U29	PC
13-P10046-AHB	IC TDA10046AHT	1	U22	PC
13-P8314H-S0B	SDTV PROCESSOR PNX8314HS/102	1	U38	PC
13-ST890C-DRB	IC ST890CD-S08	1	U10	PC
13-VC573A-PWB	IC 74LVC573APW-TSSOP20	1	U8	PC
13-VC573A-PWB	IC 74LVC573APW-TSSOP20	1	U9	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	RR2	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	RR1	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R303	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R302	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R30	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R27	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R21	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R103	PC

19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R127	PC
19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R128	PC
19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R135	PC
19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R140	PC
19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R181	PC
19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R183	PC
19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R185	PC
19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R186	PC
19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R39	PC
19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R95	PC
19-AB0101-JTX	RES SMD 100 OHM 1/10W 0603	1	R96	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R167	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R34	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R37	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R41	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R141	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R117	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R116	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R115	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R114	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R113	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R112	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R111	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R110	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R109	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R108	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R107	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R106	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R105	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R129	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R118	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R126	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R119	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R130	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R131	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R133	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R134	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R136	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R138	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R156	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R177	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R22	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R23	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R24	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R25	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R26	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R3	PC

19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R305	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R33	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R7	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R97	PC
19-AB0104-JTX	SMD. RES 100K OHM 1/10W 0603	1	R169	PC
19-AB0104-JTX	SMD. RES 100K OHM 1/10W 0603	1	R160	PC
19-AB0104-JTX	SMD. RES 100K OHM 1/10W 0603	1	R168	PC
19-AB0122-JTX	SMD. RES 1.2K OHM 1/10 J 0603	1	R1	PC
19-AB0152-JTX	SMD. RES 1.5K OHM 1/10W +/-5% 0603	1	R239	PC
19-AB0152-JTX	SMD. RES 1.5K OHM 1/10W +/-5% 0603	1	R48	PC
19-AB0181-JTX	SMD. RES 180 OHM 1/10W 0603	1	R42	PC
19-AB0202-JTX	SMD. RES 2K OHM 1/10W +/-5% 0603	1	R120	PC
19-AB0220-JTX	SMD RES 22 OHM 1/10W 0603	1	R38	PC
19-AB0220-JTX	SMD RES 22 OHM 1/10W 0603	1	R36	PC
19-AB0220-JTX	SMD RES 22 OHM 1/10W 0603	1	R35	PC
19-AB0220-JTX	SMD RES 22 OHM 1/10W 0603	1	R304	PC
19-AB0224-JTX	SMD RES 220K OHM 1/10W 0603	1	R165	PC
19-AB0224-JTX	SMD RES 220K OHM 1/10W 0603	1	R173	PC
19-AB0229-JTX	SMD. RES 2.2 OHM 1/10W J 0603	1	R44	PC
19-AB0229-JTX	SMD. RES 2.2 OHM 1/10W J 0603	1	R45	PC
19-AB0272-JTX	RES SMD 2.7K OHM 1/10W 0603	1	R182	PC
19-AB0272-JTX	RES SMD 2.7K OHM 1/10W 0603	1	R184	PC
19-AB0272-JTX	RES SMD 2.7K OHM 1/10W 0603	1	R224	PC
19-AB0272-JTX	RES SMD 2.7K OHM 1/10W 0603	1	R225	PC
19-AB0273-FTX	RES.SMD 27K OHM 1/10W +/-1% 0603	1	R61	PC
19-AB0330-JTX	RES SMD 33 OHM 1/10W +/-5%0603	1	R174	PC
19-AB0330-JTX	RES SMD 33 OHM 1/10W +/-5%0603	1	R296	PC
19-AB0330-JTX	RES SMD 33 OHM 1/10W +/-5%0603	1	R297	PC
19-AB0330-JTX	RES SMD 33 OHM 1/10W +/-5%0603	1	R298	PC
19-AB0330-JTX	RES SMD 33 OHM 1/10W +/-5%0603	1	R299	PC
19-AB0331-JTX	RES. SMD 330 OHM 1/10W 0603	1	R170	PC
19-AB0331-JTX	RES. SMD 330 OHM 1/10W 0603	1	R176	PC
19-AB0331-JTX	RES. SMD 330 OHM 1/10W 0603	1	R178	PC
19-AB0391-JTX	SMD RES 390 OHM 1/10W 0603	1	R171	PC
19-AB0470-JTX	RES SMD 47 OHM 1/10W +/-5%0603	1	R19	PC
19-AB0470-JTX	RES SMD 47 OHM 1/10W +/-5%0603	1	R284	PC
19-AB0470-JTX	RES SMD 47 OHM 1/10W +/-5%0603	1	R285	PC
19-AB0471-JTX	SMD. RES 470 OHM 1/10W +/-5%	1	R29	PC
19-AB0472-JTX	RES SMD 4.7K OHM 1/10W 0603	1	R294	PC
19-AB0472-JTX	RES SMD 4.7K OHM 1/10W 0603	1	R166	PC
19-AB0472-JTX	RES SMD 4.7K OHM 1/10W 0603	1	R158	PC
19-AB0472-JTX	RES SMD 4.7K OHM 1/10W 0603	1	R164	PC
19-AB0622-FTX	SMD.RES 6.2K OHM 1/10W +/-1%	1	R62	PC
19-AB0680-JTX	SMD. RES 68 OHM 1/10W +/-5% 0603	1	R40	PC
19-AB0684-JTX	SMD. RES 680K 1/10W +/-5% 0603	1	R172	PC
19-AB0684-JTX	SMD. RES 680K 1/10W +/-5% 0603	1	R175	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R238	PC

19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R77	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R83	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R90	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R255	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R257	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R258	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R259	PC
19-AB0752-JTX	SMD. RES 7.5K OHM 1/10W +/-5% 0603	1	R63	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN101	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN102	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN245	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN246	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN260	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN261	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN98	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN99	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN4	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN3	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN2	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN1	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN5	PC
28-AB0100-JCX	SMD. CAP 10 PF 50VDC +/-5%	1	C170	PC
28-AB0100-JCX	SMD. CAP 10 PF 50VDC +/-5%	1	C127	PC
28-AB0101-JCX	SMD. CAP 100 PF 50VDC +/-5%	1	C50	PC
28-AB0101-JCX	SMD. CAP 100 PF 50VDC +/-5%	1	C217	PC
28-AB0101-JCX	SMD. CAP 100 PF 50VDC +/-5%	1	C206	PC
28-AB0101-JCX	SMD. CAP 100 PF 50VDC +/-5%	1	C205	PC
28-AB0102-JCX	SMD. CAP 1000PF 50V +/-5% 0603	1	C89	PC
28-AB0103-KBX	SMD. CAP 0.01 UF 50V +/-10% 0603	1	C212	PC
28-AB0104-KBX	SMD. CAP 50VDC 0.1UF +/-10% 06	1	C219	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C119	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C132	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C134	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C137	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C117	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C116	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C15	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C4	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C40	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C41	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C42	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C94	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C5	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C52	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C12	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C185	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C186	PC

28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C187	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C188	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C115	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C129	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C13	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C128	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C126	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C125	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C123	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C122	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C121	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C120	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C6	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C209	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C21	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C22	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C23	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C27	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C28	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C29	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C3	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C14	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C30	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C31	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C32	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C36	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C38	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C208	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C7	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C82	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C83	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C84	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C85	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C88	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C90	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C91	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C92	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C93	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C39	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C19	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C191	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C20	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C18	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C11	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C10	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C110	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C111	PC

28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C112	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C113	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C171	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C17	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C164	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C16	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C158	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C114	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C72	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C75	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C71	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C67	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C169	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C174	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C168	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C190	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C184	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C183	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C180	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C79	PC
28-AB0220-JCX	CAP. SMD 22PF 50V +/-5% C	1	C76	PC
28-AB0332-KBX	CAP.SMD 3300PF 50V +/-10% 0603	1	C216	PC
28-AB0333-ZFX	CAP.SMD 0.033UF 50V 80-20 0603	1	C95	PC
28-AB0391-JCX	CAP.SMD 390P 50V +/-5% 0603	1	C73	PC
28-AB0391-JCX	CAP.SMD 390P 50V +/-5% 0603	1	C175	PC
28-AB0391-JCX	CAP.SMD 390P 50V +/-5% 0603	1	C70	PC
28-AB0391-JCX	CAP.SMD 390P 50V +/-5% 0603	1	C69	PC
28-AB0391-JCX	CAP.SMD 390P 50V +/-5% 0603	1	C176	PC
28-AB0391-JCX	CAP.SMD 390P 50V +/-5% 0603	1	C74	PC
28-AB0391-JCX	CAP.SMD 390P 50V +/-5% 0603	1	C77	PC
28-AB0391-JCX	CAP.SMD 390P 50V +/-5% 0603	1	C78	PC
28-AB0472-KBX	CAP.SMD 4700PF 50V +/-10% 0603	1	C48	PC
28-AB0472-KBX	CAP.SMD 4700PF 50V +/-10% 0603	1	C179	PC
28-AC0104-ZFX	SMD. CAP 16VDC/100NF/+80%/-20%	1	C215	PC
28-AC0104-ZFX	SMD. CAP 16VDC/100NF/+80%/-20%	1	C214	PC
28-AC0104-ZFX	SMD. CAP 16VDC/100NF/+80%/-20%	1	C210	PC
28-DC0107-MTX	TANTALUM CAP. 100 UF 16VDC +/-20%	1	C159	PC
28-RB0105-MAH	SMD. CAP 1 UF 50V +/-20%	1	C46	PC
28-RB0105-MAH	SMD. CAP 1 UF 50V +/-20%	1	C178	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C200	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C1	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C201	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C26	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C135	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C33	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C138	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C148	PC

28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C155	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C189	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C192	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C197	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C9	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C8	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C37	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C34	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C2	PC
28-RC0106-MAF	SMD. CAP 10 UF 16V +/-20%	1	C198	PC
28-RC0107-MAH	SMD. CAP 100 UF 16V +/-20%	1	C163	PC
28-RC0107-MAH	SMD. CAP 100 UF 16V +/-20%	1	C150	PC
28-RC0107-MAH	SMD. CAP 100 UF 16V +/-20%	1	C193	PC
28-RC0107-MAH	SMD. CAP 100 UF 16V +/-20%	1	C199	PC
28-RC0476-MAH1	SMD. CAP 47 UF 16V +/-20%	1	C53	PC
28-XC0106-MTX	TANTALUM CAP.10 UF 16V +/-20%	1	C87	PC
28-XC0106-MTX	TANTALUM CAP.10 UF 16V +/-20%	1	C43	PC
28-XC0106-MTX	TANTALUM CAP.10 UF 16V +/-20%	1	C207	PC
28-XC0106-MTX	TANTALUM CAP.10 UF 16V +/-20%	1	C133	PC
28-XC0106-MTX	TANTALUM CAP.10 UF 16V +/-20%	1	C124	PC
33-ELL229-KTX	SMD. COIL	1	L26	PC
33-ELL229-KTX	SMD. COIL	1	L25	PC
33-ELL229-KTX	SMD. COIL	1	L23	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L56	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L58	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L6	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L8	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L7	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L24	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L21	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L20	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L2	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L18	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L17	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L5	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L15	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L13	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L1	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L29	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L3	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L4	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L41	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L42	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L43	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L44	PC
33-ELN221-NTX	CHIP BEAD 220 OHM +/-25%	1	L46	PC
33-KLL229-KTX	SMD. COIL 2.2UH +/-10% 0603	1	L14	PC

33-KLL229-KTX	SMD. COIL 2.2UH +/-10% 0603	1	L12	PC
33-KLL229-KTX	SMD. COIL 2.2UH +/-10% 0603	1	L16	PC
33-KLL229-KTX	SMD. COIL 2.2UH +/-10% 0603	1	L40	PC
33-KLN101-NTA	CHIP BEAD 100 OHM +/-25%	1	L47	PC
33-KLN101-NTA	CHIP BEAD 100 OHM +/-25%	1	L57	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L62	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L61	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L60	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L64	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L66	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L65	PC
33-KLN601-NTX	CHIP BEAD 600 OHM +/-25%	1	L49	PC
33-KLN601-NTX	CHIP BEAD 600 OHM +/-25%	1	L50	PC
33-KLN601-NTX	CHIP BEAD 600 OHM +/-25%	1	L51	PC
33-KLN601-NTX	CHIP BEAD 600 OHM +/-25%	1	L52	PC
33-KLN601-NTX	CHIP BEAD 600 OHM +/-25%	1	L53	PC
33-KLN601-NTX	CHIP BEAD 600 OHM +/-25%	1	L54	PC
33-YLL220-MTX	COIL. 22U NR8040T220M	1	L63	PC
40-MDE200-DIC4XG	P.C.B DIGIBOARD	1		PC
45-OSC27M-0N4DE	27MHZ CRYSTAL 1491-27005-ASBQGA	1	XD1	PC
71-3507MM-NUL9A	LABEL	1		PC
12-BC847B-0BX	NPN SMD. TRANSISTOR BC847B	1	Q601	PC
19-AA0101-JTX	RES. SMD 100 OHM 1/16W +/-5%	1	R11	PC
19-AA0103-JTX	RES. SMD 10K OHM 1/16W +/-5%	1	R13	PC
19-AA0472-JTX	RES. SMD 4.7K OHM 1/16W +/-5%	1	R610	PC
19-AA0472-JTX	RES. SMD 4.7K OHM 1/16W +/-5%	1	R609	PC
19-AA0561-JTX	RES SMD 560OHM 1/16W +/-5%	1	R612	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C602	PC
28-CC0106-KBX	SMD. CAP 10UF/16V/+/-10%	1	C601	PC
40-MTDM61-IRB1XG	P.C.B IR RECEIVE BA	1		PC
19-AA0101-JTX	RES. SMD 100 OHM 1/16W +/-5%	1	R607	PC
19-AA0102-JTX	RES. SMD 1K OHM 1/16W +/-5%	1	R603	PC
19-AA0102-JTX	RES. SMD 1K OHM 1/16W +/-5%	1	R608	PC
19-AA0112-JTX	RES. SMD 1.1K OHM 1/6W +/-5%	1	R606	PC
19-AA0202-JTX	RES.SMD 2K 1/16W +/-5% 0603	1	R602	PC
19-AA0471-JTX	RES. SMD 470 OHM 1/16W +/-5%	1	R605	PC
19-AA0621-JTX	SMD.RES 620 OHM 1/16W +/-5%	1	R604	PC
19-AA0622-JTX	RES.SMD 6.2KOHM 0603 +/-5%	1	R601	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C603	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C607	PC
40-MTDM61-KEA1XG	P.C.B KEY BD	1		PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	U32	PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	U33	PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	U34	PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	U35	PC
09-LL4148-ATX	SMD. SWITCHING DIODE LL4148	1	D13	PC
09-LL4148-ATX	SMD. SWITCHING DIODE LL4148	1	D14	PC

09-LL4148-ATX	SMD. SWITCHING DIODE LL4148	1	D24	PC
09-LL4148-ATX	SMD. SWITCHING DIODE LL4148	1	D30	PC
09-LL4148-ATX	SMD. SWITCHING DIODE LL4148	1	D2	PC
09-LL4148-ATX	SMD. SWITCHING DIODE LL4148	1	D3	PC
09-LL4148-ATX	SMD. SWITCHING DIODE LL4148	1	D33	PC
09-S2L40U-STX	SMD. DIODE STPS2L40U	1	D32	PC
09-S2L40U-STX	SMD. DIODE STPS2L40U	1	D31	PC
12-13N03L-0BX	SMD.TRANSISTOR PHKD13N03LT	1	U29	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q16	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q17	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q1	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q10	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q12	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q13	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q8	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q7	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q24	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q23	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q22	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q21	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q18	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q3	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q4	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q26	PC
12-BT3906-0BX	SMD. TRANSISTOR MMBT3906LT1(PNP)	1	Q15	PC
12-BT3906-0BX	SMD. TRANSISTOR MMBT3906LT1(PNP)	1	Q14	PC
12-C143ZT-0BX	TRA SIG SM PDTC143ZT	1	Q29	PC
12-C143ZT-0BX	TRA SIG SM PDTC143ZT	1	Q30	PC
12-C143ZT-0BX	TRA SIG SM PDTC143ZT	1	Q31	PC
12-C143ZT-0BX	TRA SIG SM PDTC143ZT	1	Q32	PC
12-C143ZT-0BX	TRA SIG SM PDTC143ZT	1	Q33	PC
12-S7002A-0BX	TRANSISTOR NDS7002A	1	QF3	PC
12-S7002A-0BX	TRANSISTOR NDS7002A	1	QF4	PC
12-S7002A-0BX	TRANSISTOR NDS7002A	1	QF5	PC
12-S7002A-0BX	TRANSISTOR NDS7002A	1	QF6	PC
13-281622-FTB5	DDR HY5DU281622FT-5	1	U5	PC
13-281622-FTB5	DDR HY5DU281622FT-5	1	U4	PC
13-AIC108-33B	REGULATOR-3.3V AIC1084-33PE(TO-252)	1	U20	PC
13-CS4334-KSB	IC CS4334KS SO-8 STEREO D/A	1	U15	PC
13-CS4334-KSB	IC CS4334KS SO-8 STEREO D/A	1	U38	PC
13-CS5340-00B	IC CS5340	1	U12	PC
13-HC4052-PWBPH	IC 74HC4052PW TSSOP-16	1	U13	PC
13-LD1117-18B	1.8V REGULATOR IC LD1117S18TR	1	U26	PC
13-LD1117-18B	1.8V REGULATOR IC LD1117S18TR	1	U23	PC
13-LD1117-25B	2.5V REGULATOR IC LD1117S25TR(SOT-223)	1	U25	PC
13-LD1117-33B	IC LD1117 3.3V	1	U22	PC
13-LD1117-33B	IC LD1117 3.3V	1	U30	PC

13-LD1117-33B	IC LD1117 3.3V	1	U31	PC
13-LD1117-S0B	IC LD1117S SOT-223	1	U37	PC
13-LD1117-S0B	IC LD1117S SOT-223	1	U21	PC
13-M24C32-MNB	IC SM M24C32-WMN6P(ST00) R	1	U2	PC
13-MT8206-AGB	IC MT8206AG	1	U3	PC
13-MT8293-E0B	HDMI PANELLINK CINEMA RECEIVER MT8293E	1	U8	PC
13-PI5V33-0QB	IC PI5V330Q (QSOP)	1	U14	PC
13-RC4558-DRB	IC RC4558DR(8-PIN SOP)	1	U18	PC
13-RC4558-DRB	IC RC4558DR(8-PIN SOP)	1	U40	PC
13-SC2602-S0B	IC SC2602	1	U27	PC
13-SP2996-BEBNL	DDR SP2996BEN-L/TR	1	U6	PC
13-SP8J30-00B	SWITHING IC/SP8J3	1	U19	PC
13-TCM809-JEB	IC TCM809JENB713	1	U1	PC
13-TMDS34-1AB	IC TMDS341APFCR	1	U36	PC
13-YDA138-E0B	IC YDA138-E	1	U16	PC
19-AB0271-FTX	SMD. RES 270 OHM 1/10W +/-1%	1	R99	PC
19-AB0271-FTX	SMD. RES 270 OHM 1/10W +/-1%	1	R325	PC
19-BB0000-JTX	SMD. RES 0 OHM 1/10W +/-5%	1	CE74	PC
19-BB0000-JTX	SMD. RES 0 OHM 1/10W +/-5%	1	CE85	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R53	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R534	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R54	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R55	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R59	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R62	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R551	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R131	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R130	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R128	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R126	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R110	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R109	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R145	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R41	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R201	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R198	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R200	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R95	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R98	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R339	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R317	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R311	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R303	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R197	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R181	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R162	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R253	PC

19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R212	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R208	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R547	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R548	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R107	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R376	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R137	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R216	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R248	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R233	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R152	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	CE70	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R108	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R204	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R40	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R39	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R370	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R377	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R106	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R136	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R293	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R285	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R276	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R273	PC
19-GA0000-JTX	SMD. RES 0 OHM 1/16W +/-5%	1	R265	PC
19-GA0100-FTX	SMD. RES 10 OHM 1/16W +/-1%	1	R157	PC
19-GA0100-FTX	SMD. RES 10 OHM 1/16W +/-1%	1	R237	PC
19-GA0100-FTX	SMD. RES 10 OHM 1/16W +/-1%	1	R505	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R143	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R538	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R537	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R536	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R283	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R219	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R217	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R213	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R535	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R1	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R2	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R202	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R206	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R210	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R148	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R144	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R140	PC
19-GA0101-FTX	SMD.RES 100 OHM 1/16W +/-1%	1	R134	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R305	PC

19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R286	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R49	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R347	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R546	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R545	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R544	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R543	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R37	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R508	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R526	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R375	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R6	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R9	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R539	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R542	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R541	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R361	PC
19-GA0102-FTX	SMD.RES 1K OHM 1/16W +/-1%	1	R359	PC
19-GA0102-JTX	SMD. RES 1K OHM 1/16W +/-5%	1	R249	PC
19-GA0102-JTX	SMD. RES 1K OHM 1/16W +/-5%	1	R234	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R334	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R335	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R336	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R35	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R355	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R357	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R527	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R518	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R501	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R315	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R156	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R14	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R111	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R63	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R61	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R338	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R57	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R52	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R30	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R292	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R291	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R287	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R274	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R179	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R163	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R161	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R160	PC

19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R159	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R158	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R90	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R306	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R366	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R365	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R36	PC
19-GA0103-JTX	SMD. RES 10K OHM 1/16W +/-5%	1	R500	PC
19-GA0104-JTX	SMD. RES 100K OHM 1/16W +/-5%	1	R169	PC
19-GA0104-JTX	SMD. RES 100K OHM 1/16W +/-5%	1	R260	PC
19-GA0104-JTX	SMD. RES 100K OHM 1/16W +/-5%	1	R11	PC
19-GA0104-JTX	SMD. RES 100K OHM 1/16W +/-5%	1	R263	PC
19-GA0104-JTX	SMD. RES 100K OHM 1/16W +/-5%	1	R255	PC
19-GA0104-JTX	SMD. RES 100K OHM 1/16W +/-5%	1	R74	PC
19-GA0105-JTX	SMD.RES 1M OHM 1/16W +/-5%	1	R34	PC
19-GA0123-JTX	SMD. RES 12K OHM 1/16W +/-5%	1	R266	PC
19-GA0123-JTX	SMD. RES 12K OHM 1/16W +/-5%	1	R277	PC
19-GA0151-FTX	SMD. RES 150 OHM 1/16W +/-1%	1	R102	PC
19-GA0151-FTX	SMD. RES 150 OHM 1/16W +/-1%	1	R326	PC
19-GA0153-JTX	SMD. RES 15K OHM 1/16W +/-5%	1	R7	PC
19-GA0153-JTX	SMD. RES 15K OHM 1/16W +/-5%	1	R4	PC
19-GA0153-JTX	SMD. RES 15K OHM 1/16W +/-5%	1	R288	PC
19-GA0153-JTX	SMD. RES 15K OHM 1/16W +/-5%	1	R275	PC
19-GA0203-FTX	SMD.RES 20K OHM 1/16W +/-1%	1	R256	PC
19-GA0203-FTX	SMD.RES 20K OHM 1/16W +/-1%	1	R262	PC
19-GA0203-FTX	SMD.RES 20K OHM 1/16W +/-1%	1	R259	PC
19-GA0203-FTX	SMD.RES 20K OHM 1/16W +/-1%	1	R520	PC
19-GA0203-FTX	SMD.RES 20K OHM 1/16W +/-1%	1	R32	PC
19-GA0203-FTX	SMD.RES 20K OHM 1/16W +/-1%	1	R151	PC
19-GA0203-FTX	SMD.RES 20K OHM 1/16W +/-1%	1	R13	PC
19-GA0220-FTX	SMD. RES 22 OHM 1/16W +/-1%	1	R84	PC
19-GA0220-FTX	SMD. RES 22 OHM 1/16W +/-1%	1	R82	PC
19-GA0220-FTX	SMD. RES 22 OHM 1/16W +/-1%	1	R80	PC
19-GA0220-FTX	SMD. RES 22 OHM 1/16W +/-1%	1	R47	PC
19-GA0220-FTX	SMD. RES 22 OHM 1/16W +/-1%	1	R48	PC
19-GA0220-FTX	SMD. RES 22 OHM 1/16W +/-1%	1	R64	PC
19-GA0220-FTX	SMD. RES 22 OHM 1/16W +/-1%	1	R71	PC
19-GA0220-FTX	SMD. RES 22 OHM 1/16W +/-1%	1	R76	PC
19-GA0220-FTX	SMD. RES 22 OHM 1/16W +/-1%	1	R78	PC
19-GA0220-FTX	SMD. RES 22 OHM 1/16W +/-1%	1	R73	PC
19-GA0221-FTX	SMD.RES 220 OHM 1/16W +/-1%	1	R509	PC
19-GA0222-JTX	SMD. RES 2.2K OHM 1/16W +/-5%	1	R150	PC
19-GA0222-JTX	SMD. RES 2.2K OHM 1/16W +/-5%	1	R154	PC
19-GA0222-JTX	SMD. RES 2.2K OHM 1/16W +/-5%	1	R296	PC
19-GA0222-JTX	SMD. RES 2.2K OHM 1/16W +/-5%	1	R507	PC
19-GA0222-JTX	SMD. RES 2.2K OHM 1/16W +/-5%	1	R519	PC
19-GA0223-JTX	SMD. RES 22K OHM 1/16W +/-5%	1	R499	PC

19-GA0223-JTX	SMD. RES 22K OHM 1/16W +/-5%	1	R498	PC
19-GA0223-JTX	SMD. RES 22K OHM 1/16W +/-5%	1	R294	PC
19-GA0223-JTX	SMD. RES 22K OHM 1/16W +/-5%	1	R187	PC
19-GA0229-FTX	SMD.RES 2.2 OHM 1/16W +/-1%	1	R512	PC
19-GA0229-FTX	SMD.RES 2.2 OHM 1/16W +/-1%	1	R513	PC
19-GA0103-JTX	SMD.RES 3K OHM 1/16W +/-5%	1	R3	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R225	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R174	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R176	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R230	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R228	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R177	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R178	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R224	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R50	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R349	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R348	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R346	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R345	PC
19-GA0330-FTX	SMD.RES 33 OHM 1/16W +/-1%	1	R27	PC
19-GA0331-JTX	SMD.RES 330 OHM 1/16W +/-5%	1	R19	PC
19-GA0331-JTX	SMD.RES 330 OHM 1/16W +/-5%	1	R215	PC
19-GA0331-JTX	SMD.RES 330 OHM 1/16W +/-5%	1	R191	PC
19-GA0331-JTX	SMD.RES 330 OHM 1/16W +/-5%	1	R368	PC
19-GA0331-JTX	SMD.RES 330 OHM 1/16W +/-5%	1	R372	PC
19-GA0331-JTX	SMD.RES 330 OHM 1/16W +/-5%	1	R522	PC
19-GA0332-JTX	SMD. RES 3.3K OHM 1/16W +/-5%	1	R141	PC
19-GA0332-JTX	SMD. RES 3.3K OHM 1/16W +/-5%	1	R142	PC
19-GA0393-JTX	SMD. RES 39K OHM 1/16W +/-5%	1	R261	PC
19-GA0393-JTX	SMD. RES 39K OHM 1/16W +/-5%	1	R272	PC
19-GA0470-JTX	SMD.RES 47 OHM 1/16W +/-5%	1	R371	PC
19-GA0470-JTX	SMD.RES 47 OHM 1/16W +/-5%	1	R69	PC
19-GA0470-JTX	SMD.RES 47 OHM 1/16W +/-5%	1	R68	PC
19-GA0470-JTX	SMD.RES 47 OHM 1/16W +/-5%	1	R67	PC
19-GA0470-JTX	SMD.RES 47 OHM 1/16W +/-5%	1	R367	PC
19-GA0470-JTX	SMD.RES 47 OHM 1/16W +/-5%	1	R66	PC
19-GA0470-JTX	SMD.RES 47 OHM 1/16W +/-5%	1	R5	PC
19-GA0470-JTX	SMD.RES 47 OHM 1/16W +/-5%	1	R362	PC
19-GA0470-JTX	SMD.RES 47 OHM 1/16W +/-5%	1	R356	PC
19-GA0470-JTX	SMD.RES 47 OHM 1/16W +/-5%	1	R16	PC
19-GA0471-JTX	SMD. RES 470 OHM 1/16W +/-5%	1	R333	PC
19-GA0471-JTX	SMD. RES 470 OHM 1/16W +/-5%	1	R332	PC
19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R26	PC
19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R101	PC
19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R103	PC
19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R172	PC
19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R281	PC

19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R282	PC
19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R308	PC
19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R316	PC
19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R528	PC
19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R96	PC
19-GA0472-FTX	SMD.RES 4.7KOHM 1/16W +/-1%	1	R97	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R12	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R184	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R183	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R182	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R180	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R350	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R352	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R117	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R404	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R353	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R351	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R231	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R221	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R190	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R121	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R118	PC
19-GA0473-JTX	SMD.RES 47K OHM 1/16W +/-5%	1	R17	PC
19-GA0510-FTX	SMD.RES 51 OHM 1/16W +/-1%	1	R521	PC
19-GA0510-FTX	SMD.RES 51 OHM 1/16W +/-1%	1	R290	PC
19-GA0510-FTX	SMD.RES 51 OHM 1/16W +/-1%	1	R284	PC
19-GA0510-FTX	SMD.RES 51 OHM 1/16W +/-1%	1	R239	PC
19-GA0510-FTX	SMD.RES 51 OHM 1/16W +/-1%	1	R251	PC
19-GA0510-FTX	SMD.RES 51 OHM 1/16W +/-1%	1	R268	PC
19-GA0510-FTX	SMD.RES 51 OHM 1/16W +/-1%	1	R279	PC
19-GA0512-JTX	SMD.RES 5.1K OHM 1/16W +/-5%	1	R267	PC
19-GA0512-JTX	SMD.RES 5.1K OHM 1/16W +/-5%	1	R278	PC
19-GA0512-JTX	SMD.RES 5.1K OHM 1/16W +/-5%	1	R289	PC
19-GA0512-JTX	SMD.RES 5.1K OHM 1/16W +/-5%	1	R506	PC
19-GA0512-JTX	SMD.RES 5.1K OHM 1/16W +/-5%	1	R280	PC
19-GA0680-FTX	SMD.RES 68 OHM 1/16W +/-1%	1	R199	PC
19-GA0680-FTX	SMD.RES 68 OHM 1/16W +/-1%	1	R203	PC
19-GA0680-FTX	SMD.RES 68 OHM 1/16W +/-1%	1	R207	PC
19-GA0680-FTX	SMD.RES 68 OHM 1/16W +/-1%	1	R132	PC
19-GA0680-FTX	SMD.RES 68 OHM 1/16W +/-1%	1	R138	PC
19-GA0680-FTX	SMD.RES 68 OHM 1/16W +/-1%	1	R218	PC
19-GA0680-FTX	SMD.RES 68 OHM 1/16W +/-1%	1	R214	PC
19-GA0680-FTX	SMD.RES 68 OHM 1/16W +/-1%	1	R211	PC
19-GA0680-FTX	SMD.RES 68 OHM 1/16W +/-1%	1	R146	PC
19-GA0681-FTX	SMD.RES 680 OHM 1/16W +/-1%	1	R510	PC
19-GA0681-FTX	SMD.RES 680 OHM 1/16W +/-1%	1	R42	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R373	PC

19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R358	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R364	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R374	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R495	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R496	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R497	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R65	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R70	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R72	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R75	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R77	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R79	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R81	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R83	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R85	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R20	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R133	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R139	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R147	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R18	PC
19-GA0750-FTX	SMD. RES 75 OHM 1/16W +/-1%	1	R188	PC
19-GA4641-FTX	SMD.RES 4.64K OHM 1/16W +/-1%	1	R540	PC
19-GA4999-FTX	SMD.RES 49.9 OHM 1/16W +/-1%	1	R46	PC
19-GA4999-FTX	SMD.RES 49.9 OHM 1/16W +/-1%	1	R45	PC
19-GA4999-FTX	SMD.RES 49.9 OHM 1/16W +/-1%	1	R43	PC
19-GA4999-FTX	SMD.RES 49.9 OHM 1/16W +/-1%	1	R44	PC
19-GA6491-FTX	SMD.RES 6490 OHM 1/16W +/-1%	1	R504	PC
23-A08220-JBX	NETWORK RES. 22 OHM +/-5%	1	RN2	PC
23-A08220-JBX	NETWORK RES. 22 OHM +/-5%	1	RN6	PC
23-A08220-JBX	NETWORK RES. 22 OHM +/-5%	1	RN4	PC
23-A08220-JBX	NETWORK RES. 22 OHM +/-5%	1	RN25	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN32	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN31	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN30	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN29	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN28	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN27	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN26	PC
23-A08330-JBX	NETWORK RES. 33 OHM +/-5%	1	RN38	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN13	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN37	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN35	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN36	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN8	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN34	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN16	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN21	PC

23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN33	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN11	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN10	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN19	PC
23-A08470-JBX	CHIP ARRAY RES. 47 OHM +/-5% 0603*4	1	RN17	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN5	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN7	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN9	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN23	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN22	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN20	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN24	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN3	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN12	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN18	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN15	PC
23-A08750-JBX	RES.75*4 OHM 1/8W +/-5%	1	RN14	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	CB31	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	CB38	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	CB35	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	CB43	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	CB185	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	C6	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	C4	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	C28	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	C27	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	C20	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	C14	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	C10	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	C105	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	C104	PC
28-AA0105-ZFX	SMD CAP 10V 1UF +80/-20%	1	C103	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C192	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C193	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C166	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C172	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C189	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C190	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C191	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C165	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C106	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	CB192	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	CB208	PC
28-BA0475-ZFX	CAP.SMD 4.7UF 10V +80% -20%	1	CB194	PC
28-BA0475-ZFX	CAP.SMD 4.7UF 10V +80% -20%	1	CB188	PC
28-BB0104-ZFX	SMD CAP. 0.1 UF 50V +80/-20% 0805	1	CB173	PC
28-BB0334-ZFX	SMD. CAP 0.33UF 50V +80%/-20%	1	C169	PC

28-BB0334-ZFX	SMD. CAP 0.33UF 50V +80%/-20%	1	C170	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE15	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE16	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE190	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE23	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE24	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C15	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE31	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE32	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE33	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE35	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE37	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE38	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE49	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE61	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE29	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C22	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C21	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C19	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C18	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C17	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C16	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C153	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CB190	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE10	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C23	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE11	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE51	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C50	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C5	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C26	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C25	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C24	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE25	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE26	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE27	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C9	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE7	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE8	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE9	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE28	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE52	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE53	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE54	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE59	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE60	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	CE30	PC

28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C101	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C51	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C53	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C7	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C13	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C11	PC
28-BC0475-ZFX	SMD. CAP. 4.7 UF 16V +80/-20%	1	C108	PC
28-CA0106-ZFX	CAP. 10 UF 10V +80-20% 1206	1	C3	PC
28-CA0106-ZFX	CAP. 10 UF 10V +80-20% 1206	1	C56	PC
28-CA0106-ZFX	CAP. 10 UF 10V +80-20% 1206	1	C49	PC
28-HB0100-JCX	SMD. CAP 10 PF 50V +/-5% 0402	1	C97	PC
28-HB0100-JCX	SMD. CAP 10 PF 50V +/-5% 0402	1	C92	PC
28-HB0100-JCX	SMD. CAP 10 PF 50V +/-5% 0402	1	C88	PC
28-HB0100-JCX	SMD. CAP 10 PF 50V +/-5% 0402	1	C102	PC
28-HB0100-JCX	SMD. CAP 10 PF 50V +/-5% 0402	1	C48	PC
28-HB0100-JCX	SMD. CAP 10 PF 50V +/-5% 0402	1	C100	PC
28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402	1	C159	PC
28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402	1	C162	PC
28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402	1	C183	PC
28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402	1	C186	PC
28-HB0101-JCX	SMD. CAP 100 PF 50V +/-5% 0402	1	C188	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C63	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C64	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C65	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C79	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C78	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C77	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C76	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C75	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C74	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C73	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C72	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C69	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C68	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C67	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C66	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C59	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C58	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C57	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C35	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C60	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C61	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C62	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C143	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C158	PC
28-HB0102-KBX	SMD. CAP 1 NF 50V +/-10% 0402	1	C154	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C174	PC

28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C139	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C234	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C235	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C236	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C237	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C238	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C91	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C93	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C98	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	CB58	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	CB61	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C89	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C87	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C83	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C29	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C94	PC
28-HB0103-KBX	SMD.CAP 10NF 50V +/-10%	1	C233	PC
28-HB0150-JCX	SMD.CAP 15PF 50V +/-5%	1	C142	PC
28-HB0150-JCX	SMD.CAP 15PF 50V +/-5%	1	C138	PC
28-HB0150-JCX	SMD.CAP 15PF 50V +/-5%	1	C130	PC
28-HB0150-JCX	SMD.CAP 15PF 50V +/-5%	1	C123	PC
28-HB0150-JCX	SMD.CAP 15PF 50V +/-5%	1	C147	PC
28-HB0150-JCX	SMD.CAP 15PF 50V +/-5%	1	C116	PC
28-HB0150-JCX	SMD.CAP 15PF 50V +/-5%	1	C1	PC
28-HB0150-JCX	SMD.CAP 15PF 50V +/-5%	1	C2	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C55	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C32	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C33	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C34	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C40	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C41	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C42	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C43	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C44	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C45	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C46	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C31	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C30	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C47	PC
28-HB0222-KBX	SMD.CAP 2.2NF 50V +/-10%	1	C54	PC
28-HB0271-KBX	SMD.CAP 270PF 50V +/-10%	1	C160	PC
28-HB0271-KBX	SMD.CAP 270PF 50V +/-10%	1	C187	PC
28-HB0271-KBX	SMD.CAP 270PF 50V +/-10%	1	C185	PC
28-HB0271-KBX	SMD.CAP 270PF 50V +/-10%	1	C163	PC
28-HB0331-KBX	SMD. CAP 330 PF 50V +/-10% 0402	1	C114	PC
28-HB0331-KBX	SMD. CAP 330 PF 50V +/-10% 0402	1	C120	PC
28-HB0331-KBX	SMD. CAP 330 PF 50V +/-10% 0402	1	C113	PC

28-HB0331-KBX	SMD. CAP 330 PF 50V +/-10% 0402	1	C121	PC
28-HB0331-KBX	SMD. CAP 330 PF 50V +/-10% 0402	1	C127	PC
28-HB0331-KBX	SMD. CAP 330 PF 50V +/-10% 0402	1	C128	PC
28-HB0331-KBX	SMD. CAP 330 PF 50V +/-10% 0402	1	C134	PC
28-HB0331-KBX	SMD. CAP 330 PF 50V +/-10% 0402	1	C135	PC
28-HB0470-JCX	SMD.CAP 0402 NC/47P/50V	1	C181	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C173	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C171	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C151	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C148	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C146	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C145	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C141	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C140	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C137	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C136	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB65	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB135	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB86	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB87	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB88	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB89	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C125	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C232	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB134	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C226	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C194	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C178	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C133	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB145	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB146	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB101	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB100	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB10	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB1	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C90	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C80	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C8	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C71	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C70	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C52	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C39	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C38	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB117	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB149	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB155	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB79	PC

28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB8	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB80	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB202	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C176	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C175	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C115	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB37	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB44	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB42	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB41	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB40	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB39	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB50	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB51	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB52	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB53	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB54	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB24	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB9	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB203	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB204	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB205	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB206	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB207	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB23	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB47	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB46	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB48	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C112	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C109	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C107	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB106	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB197	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB195	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB193	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB180	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB181	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB184	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB187	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB191	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C129	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB133	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB132	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C126	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB109	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB131	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB107	PC

28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB108	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C122	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C12	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C119	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB144	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C244	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB154	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB153	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB152	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB151	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C243	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB128	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB127	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB126	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB125	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB124	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB123	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB122	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB121	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB120	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB119	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB118	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB105	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB104	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB103	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB201	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB200	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB2	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB150	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB175	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB171	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB170	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB17	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB168	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB156	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB157	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB162	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB163	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB164	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB165	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB167	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB18	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB137	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB136	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB15	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C252	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C253	PC

28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C254	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C99	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C248	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C246	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB67	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB66	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB102	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB81	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB82	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB83	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB84	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB85	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB198	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB11	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB110	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB111	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB112	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB113	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB114	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB116	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C242	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB138	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB139	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB140	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB141	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB142	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB143	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB64	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB60	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB59	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB57	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB56	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB55	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C37	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C36	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB130	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB13	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB129	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB78	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB77	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB76	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB75	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB74	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB73	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB72	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB71	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB70	PC

28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB7	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB69	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB68	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB34	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB36	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB98	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB97	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB96	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB95	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB94	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB93	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB92	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB91	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB99	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C251	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C245	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C247	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB49	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB5	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB45	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB90	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C249	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	C250	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB25	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB26	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB27	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB28	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB29	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB30	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB32	PC
28-HC0104-ZFX	SMD.CAP 100NF 16V +80% -20%	1	CB33	PC
28-HC0473-ZFX	SMD. CAP 47 NF 16V	1	C124	PC
28-HC0473-ZFX	SMD. CAP 47 NF 16V	1	C118	PC
28-HC0473-ZFX	SMD. CAP 47 NF 16V	1	C117	PC
28-HC0473-ZFX	SMD. CAP 47 NF 16V	1	C131	PC
28-HC0473-ZFX	SMD. CAP 47 NF 16V	1	C132	PC
28-HC0473-ZFX	SMD. CAP 47 NF 16V	1	C164	PC
28-HC0473-ZFX	SMD. CAP 47 NF 16V	1	C111	PC
28-HC0473-ZFX	SMD. CAP 47 NF 16V	1	C110	PC
28-RA0108-MAF	SMD.CAP 1000 UF 10V +/-20%	1	CE195	PC
28-RC0106-MAX	SMD. CAP 10 UF 16V +/-20%	1	CE91	PC
28-RC0106-MAX	SMD. CAP 10 UF 16V +/-20%	1	CE90	PC
28-RC0106-MAX	SMD. CAP 10 UF 16V +/-20%	1	CE88	PC
28-RC0106-MAX	SMD. CAP 10 UF 16V +/-20%	1	CE87	PC
28-RC0106-MAX	SMD. CAP 10 UF 16V +/-20%	1	CE5	PC
28-RC0106-MAX	SMD. CAP 10 UF 16V +/-20%	1	CE12	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE1	PC

28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE103	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	C167	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE109	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE13	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE14	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE17	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE21	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	C168	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE46	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE44	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE42	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE41	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE40	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE108	PC
28-RC0107-MAL	SMD. CAP 100 UF 16V +/-20%	1	CE104	PC
28-RC0226-MAH	SMD. CAP 22 UF 16V +/-20%	1	CE193	PC
28-RC0226-MAH	SMD. CAP 22 UF 16V +/-20%	1	CE102	PC
28-RC0226-MAH	SMD. CAP 22 UF 16V +/-20%	1	C161	PC
28-RC0226-MAH	SMD. CAP 22 UF 16V +/-20%	1	C155	PC
28-RC0226-MAH	SMD. CAP 22 UF 16V +/-20%	1	CE192	PC
28-RC0226-MAH	SMD. CAP 22 UF 16V +/-20%	1	CE78	PC
28-RC0226-MAX	SMD. CAP 22 UF 16V +/-20%	1	CE86	PC
28-RC0226-MAX	SMD. CAP 22 UF 16V +/-20%	1	CE75	PC
28-RC0227-MAL	SMD. CAP 220UF 16V +/-20%	1	CE92	PC
28-RC0227-MAL	SMD. CAP 220UF 16V +/-20%	1	CE3	PC
28-RC0227-MAL	SMD. CAP 220UF 16V +/-20%	1	CE95	PC
28-RC0476-MAH	SMD. CAP 47 UF 16V +/-20%	1	CE64	PC
28-RC0476-MAH1	SMD. CAP 47 UF 16V +/-20%	1	CE67	PC
28-RC0476-MAH1	SMD. CAP 47 UF 16V +/-20%	1	CE45	PC
28-RC0476-MAH1	SMD. CAP 47 UF 16V +/-20%	1	CE47	PC
28-RC0476-MAH1	SMD. CAP 47 UF 16V +/-20%	1	CE48	PC
28-RC0476-MAH1	SMD. CAP 47 UF 16V +/-20%	1	CE50	PC
28-RC0476-MAH1	SMD. CAP 47 UF 16V +/-20%	1	CE39	PC
28-RC0476-MAH1	SMD. CAP 47 UF 16V +/-20%	1	CE197	PC
28-RD0227-MAX	ALUMINIUM CAP. 220 UF 25V +/-20%	1	CE36	PC
28-RD0227-MAX	ALUMINIUM CAP. 220 UF 25V +/-20%	1	CE111	PC
28-RD0227-MAX	ALUMINIUM CAP. 220 UF 25V +/-20%	1	CE113	PC
28-RD0227-MAX	ALUMINIUM CAP. 220 UF 25V +/-20%	1	CE34	PC
28-RD0475-MAH	ALUMINIUM CAP. 4.7UF 25V +/-20%	1	CE73	PC
28-RD0475-MAH	ALUMINIUM CAP. 4.7UF 25V +/-20%	1	CE2	PC
28-RD0475-MAH	ALUMINIUM CAP. 4.7UF 25V +/-20%	1	CE76	PC
28-RD0477-MAH	ALUMINIUM CAP. 470 UF 25V +/-20%	1	C196	PC
28-RD0477-MAH	ALUMINIUM CAP. 470 UF 25V +/-20%	1	CE93	PC
28-RD0477-MAH	ALUMINIUM CAP. 470 UF 25V +/-20%	1	CE194	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB1	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB10	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB11	PC

33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB13	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB15	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB7	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB27	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB8	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB9	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB20	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB19	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB18	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB17	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB6	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB5	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB4	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB29	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB28	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB21	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB23	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB24	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB25	PC
33-ELN300-NTX	CHIP BEAD 30 OHM +/-25%	1	FB26	PC
33-GLL101-KTX	SMD. COIL 100 UH +/-10% CMI3216	1	L14	PC
33-GLL101-KTX	SMD. COIL 100 UH +/-10% CMI3216	1	L15	PC
33-KLL100-KTX	SMD. COIL 10 UH +/-10% 0603	1	L79	PC
33-KLL229-KTX	SMD. COIL 2.2UH +/-10% 0603	1	L30	PC
33-KLL229-KTX	SMD. COIL 2.2UH +/-10% 0603	1	L29	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L23	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L60	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L61	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L62	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L12	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L13	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L40	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L78	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L24	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L17	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L2	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L20	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L21	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L22	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L6	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L54	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L53	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L5	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L48	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L47	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L46	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L64	PC

33-KLN300-NTX	CHIP BEAD 30 OHM	1	L63	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L4	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L39	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L3	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L27	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L25	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L26	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L72	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L71	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L45	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L42	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L55	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L56	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L57	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L58	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L59	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	FB12	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	FB2	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	FB3	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	FB31	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	FB33	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L1	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L16	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L10	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L65	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L66	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L67	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L68	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L7	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L70	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L8	PC
33-KLN300-NTX	CHIP BEAD 30 OHM	1	L9	PC
33-YLL100-MTX	SMD.COIL 10uH NR8040T100M	1	L69	PC
33-YLL220-MTX	COIL. 22U NR8040T220M	1	L77	PC
33-YLL220-MTX	COIL. 22U NR8040T220M	1	L75	PC
33-YLL220-MTX	COIL. 22U NR8040T220M	1	L76	PC
33-YLL220-MTX	COIL. 22U NR8040T220M	1	L74	PC
40-MT02TI-MAB4XG	TV PCB MA BD R=Y	1		PC
45-OSC27M-0Y6C	SMD CRYSTAL 8D27000223BHAF2025	1	X1	PC
47-HDI001-XX1	HDMI SOCKET	1	P3	PC
47-HDI001-XX1	HDMI SOCKET	1	P1	PC
50-05000G-CUU3G	FUSE -0603-5A 0467-005	1	F1	PC
71-3507MM-NUL9A	LABEL	1		PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	D9	PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	D8	PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	D2	PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	D14	PC

09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	D13	PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	D11	PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	D10	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q12	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q13	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q6	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q7	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q15	PC
12-BT3904-0BX	SMD. TRANSISTOR MMBT3904LT1(NPN)	1	Q17	PC
13-HC4052-PWBPH	IC 74HC4052PW TSSOP-16	1	U2	PC
13-MC1405-3BBD	SIMULATE SWITCH MC14053BD	1	U6	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	FB15	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R118	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	FB6	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R60	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	FB9	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	FB7	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R70	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	FB11	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	FB4	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R71	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R80	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R87	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R96	PC
19-AA0102-JTX	RES. SMD 1K OHM 1/16W +/-5%	1	R93	PC
19-AA0103-JTX	RES. SMD 10K OHM 1/16W +/-5%	1	R33	PC
19-AA0103-JTX	RES. SMD 10K OHM 1/16W +/-5%	1	R88	PC
19-AA0103-JTX	RES. SMD 10K OHM 1/16W +/-5%	1	R82	PC
19-AA0103-JTX	RES. SMD 10K OHM 1/16W +/-5%	1	R41	PC
19-AA0103-JTX	RES. SMD 10K OHM 1/16W +/-5%	1	R113	PC
19-AA0103-JTX	RES. SMD 10K OHM 1/16W +/-5%	1	R114	PC
19-AA0333-JTX	RES. SMD 33K OHM 1/16W +/-5%	1	R112	PC
19-AA0333-JTX	RES. SMD 33K OHM 1/16W +/-5%	1	R111	PC
19-AA0470-JTX	RES. SMD 47 OHM 1/16W +/-5%	1	R92	PC
19-AA0470-JTX	RES. SMD 47 OHM 1/16W +/-5%	1	R85	PC
19-AA0473-JTX	RES.SMD 47K 1/16W 0603 +/-5%	1	R37	PC
19-AA0473-JTX	RES.SMD 47K 1/16W 0603 +/-5%	1	R29	PC
19-AA0750-JTX	RES. SMD 75 OHM 1/16W +/-5%	1	R89	PC
19-AA0750-JTX	RES. SMD 75 OHM 1/16W +/-5%	1	R91	PC
19-AA0750-JTX	RES. SMD 75 OHM 1/16W +/-5%	1	R3	PC
19-AA0750-JTX	RES. SMD 75 OHM 1/16W +/-5%	1	R119	PC
19-AA0820-JTX	SMD. RES 82 OHM 1/16W +/-5% 0603	1	R101	PC
19-AA0820-JTX	SMD. RES 82 OHM 1/16W +/-5% 0603	1	R81	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R143	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R86	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	FB8	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R94	PC

19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R126	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R12	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R15	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R18	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R21	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R50	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R51	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R77	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R78	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R10	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R13	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R14	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R16	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R17	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R19	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R20	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R22	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R23	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R24	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R25	PC
19-AB0103-JTX	RES SMD 10K OHM 1/10W 0603	1	R53	PC
19-AB0104-JTX	SMD. RES 100K OHM 1/10W 0603	1	R26	PC
19-AB0104-JTX	SMD. RES 100K OHM 1/10W 0603	1	R27	PC
19-AB0104-JTX	SMD. RES 100K OHM 1/10W 0603	1	R34	PC
19-AB0104-JTX	SMD. RES 100K OHM 1/10W 0603	1	R35	PC
19-AB0104-JTX	SMD. RES 100K OHM 1/10W 0603	1	R28	PC
19-AB0104-JTX	SMD. RES 100K OHM 1/10W 0603	1	R36	PC
19-AB0221-JTX	RES SMD 220 OHM 1/10W 0603	1	R127	PC
19-AB0223-JTX	SMD. RES 22K OHM 1/10W +/-5% 0603	1	R52	PC
19-AB0273-JTX	SMD. RES 27K OHM 1/10W +/-5%	1	R38	PC
19-AB0273-JTX	SMD. RES 27K OHM 1/10W +/-5%	1	R32	PC
19-AB0273-JTX	SMD. RES 27K OHM 1/10W +/-5%	1	R40	PC
19-AB0273-JTX	SMD. RES 27K OHM 1/10W +/-5%	1	R39	PC
19-AB0273-JTX	SMD. RES 27K OHM 1/10W +/-5%	1	R131	PC
19-AB0273-JTX	SMD. RES 27K OHM 1/10W +/-5%	1	R30	PC
19-AB0333-JTX	RES. SMD 33K OHM 1/10W 0603	1	R55	PC
19-AB0363-JTX	RES. SMD 36K OHM 1/10W +/-5%	1	R54	PC
19-AB0471-JTX	SMD. RES 470 OHM 1/10W +/-5%	1	R2	PC
19-AB0512-JTX	RES. SMD 5.1K OHM 1/10W J 0603	1	R125	PC
19-AB0512-JTX	RES. SMD 5.1K OHM 1/10W J 0603	1	R124	PC
19-AB0512-JTX	RES. SMD 5.1K OHM 1/10W J 0603	1	R122	PC
19-AB0512-JTX	RES. SMD 5.1K OHM 1/10W J 0603	1	R120	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R73	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R72	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R62	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R57	PC
19-AB0821-JTX	SMD. RES 820 OHM 1/10W +/-5% 0603	1	R56	PC

19-AB0822-JTX	SMD. RES 8.2K OHM 1/10W +/-5% 0603	1	R97	PC
19-AB0822-JTX	SMD. RES 8.2K OHM 1/10W +/-5% 0603	1	R98	PC
19-AB0822-JTX	SMD. RES 8.2K OHM 1/10W +/-5% 0603	1	R121	PC
19-AB0822-JTX	SMD. RES 8.2K OHM 1/10W +/-5% 0603	1	R43	PC
19-AB0822-JTX	SMD. RES 8.2K OHM 1/10W +/-5% 0603	1	R11	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	CB2	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	CB3	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C28	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C16	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C20	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C8	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C1	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C2	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C10	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C19	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C18	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C17	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C9	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C7	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C24	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C23	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C22	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C21	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C11	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C12	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C13	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C14	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C15	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C29	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C30	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C31	PC
28-BA0106-ZFX	SMD. CAP 10UF 10V +80% -20%	1	C32	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB14	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB13	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB18	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	L8	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	L7	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB12	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB5	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB3	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB2	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB17	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB1	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB16	PC
09-D3V3L4-UGB	SMD.DOIDE PESD3V3LRUG	1	D12	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	FB5	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	L72	PC

19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	L73	PC
19-AB0000-JTX	RES SMD 0 OHM 1/10W +/-5% 0603	1	R78	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R341	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R342	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R32	PC
19-AB0102-JTX	RES SMD 1K OHM 1/10W 0603	1	R31	PC
19-AB0123-JTX	SMD. RES 12K OHM 1/10 J 0603	1	R704	PC
19-AB0123-JTX	SMD. RES 12K OHM 1/10 J 0603	1	R701	PC
19-AB0220-JTX	SMD RES 22 OHM 1/10W 0603	1	R30	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C702	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C704	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C703	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C1	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C2	PC
28-AB0470-JCX	CAP.SMD 47PF 50V +/-5% 0603	1	C701	PC
28-AB0682-KBX	SMD. CAP 6800PF 50VDC +/-10%	1	C708	PC
28-AB0682-KBX	SMD. CAP 6800PF 50VDC +/-10%	1	C709	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB701	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	FB702	PC
33-KLN121-NTX	CHIP BEAD 120 OHM +/-25%	1	L4	PC
09-0BA592-ATX	SILICON RF SWITCHING DIODE 35V 100MA	1	D602	PC
09-0BA982-ATX	SMD.DIODE BA982-GS08	1	D611	PC
09-0BA982-ATX	SMD.DIODE BA982-GS08	1	D612	PC
09-0BA982-ATX	SMD.DIODE BA982-GS08	1	D610	PC
09-0BAV99-ATX	HIGH SPEED DOUBLE DIODE BAV99	1	D613	PC
09-55C33V-DTX	SMD.DIODE BZV55-C33	1	D614	PC
09-LL4148-ATX	SMD. SWITCHING DIODE LL4148	1	D601	PC
12-BC846B-0BX	TRANSISTOR BC846B	1	Q612	PC
12-BC847C-0BX	SMD.TRANSISTOR BC847C	1	Q610	PC
12-BT3904-0BX	SMD.TRANSISTOR BC847C	1	Q615	PC
12-BC847C-0BX	SMD.TRANSISTOR BC847C	1	Q611	PC
12-C124ET-0BX	SMD. TRANSISTOR PDTC124ET	1	Q616	PC
12-C124ET-0BX	SMD. TRANSISTOR PDTC124ET	1	Q613	PC
13-1G3157-CCB	IC SN74LVC1G3157DBVR	1	U602	PC
13-TDA988-6TB	IC TDA9886T/V3	1	U601	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R645	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R623	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R622	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R5	PC
19-AA0000-JTX	RES. SMD 0 OHM 1/16W +/-5%	1	R1	PC
19-AA0101-JTX	RES. SMD 100 OHM 1/16W +/-5%	1	R619	PC
19-AA0101-JTX	RES. SMD 100 OHM 1/16W +/-5%	1	R618	PC
19-AA0104-JTX	RES. SMD 100K OHM 1/16W +/-5%	1	R630	PC
19-AA0104-JTX	RES. SMD 100K OHM 1/16W +/-5%	1	R616	PC
19-AA0123-JTX	SMD. RES 12K OHM 1/16W J 0603	1	R646	PC
19-AA0123-JTX	SMD. RES 12K OHM 1/16W J 0603	1	R601	PC
19-AA0123-JTX	SMD. RES 12K OHM 1/16W J 0603	1	R615	PC

19-AA0222-JTX	RES. SMD 2.2K OHM 1/16W +/-5%	1	R14	PC
19-AA0222-JTX	RES. SMD 2.2K OHM 1/16W +/-5%	1	R633	PC
19-AA0222-JTX	RES. SMD 2.2K OHM 1/16W +/-5%	1	R634	PC
19-AA0222-JTX	RES. SMD 2.2K OHM 1/16W +/-5%	1	R635	PC
19-AA0223-JTX	RES.SMD 22K 1/16W 0603 +/-5%	1	R604	PC
19-AA0223-JTX	RES.SMD 22K 1/16W 0603 +/-5%	1	R621	PC
19-AA0223-JTX	RES.SMD 22K 1/16W 0603 +/-5%	1	R611	PC
19-AA0223-JTX	RES.SMD 22K 1/16W 0603 +/-5%	1	R620	PC
19-AA0223-JTX	RES.SMD 22K 1/16W 0603 +/-5%	1	R647	PC
19-AA0224-JTX	SMD. RES 220K OHM 1/16W +/-5% 0603	1	R610	PC
19-AA0330-JTX	RES. SMD 33 OHM 1/16W +/-5%	1	R632	PC
19-AA0330-JTX	RES. SMD 33 OHM 1/16W +/-5%	1	R638	PC
19-AA0331-JTX	RES. SMD 330 OHM 1/16W +/-5%	1	R612	PC
19-AA0331-JTX	RES. SMD 330 OHM 1/16W +/-5%	1	R648	PC
19-AA0473-JTX	RES.SMD 47K 1/16W 0603 +/-5%	1	R631	PC
19-AA0562-JTX	RES.SMD 5.6K 1/16W +/-5% 0603	1	R637	PC
19-AA0562-JTX	RES.SMD 5.6K 1/16W +/-5% 0603	1	R617	PC
19-AA0682-JTX	SMD. RES 6.8K 1/16W +/-5% 0603	1	R606	PC
19-AA0682-JTX	SMD. RES 6.8K 1/16W +/-5% 0603	1	R607	PC
19-AA0682-JTX	SMD. RES 6.8K 1/16W +/-5% 0603	1	R608	PC
19-AA0684-JTX	RES.SMD 680K OHM 1/10W +/-5%	1	R609	PC
19-AA0221-JTX	RES. SMD 75 OHM 1/16W +/-5%	1	R649	PC
19-AA0750-JTX	RES. SMD 75 OHM 1/16W +/-5%	1	R614	PC
19-AB0472-JTX	RES SMD 4.7K OHM 1/10W 0603	1	R656	PC
19-AB0750-JTX	SMD. RES 75 OHM 1/10W 0603	1	R655	PC
19-BB0000-JTX	SMD. RES 0 OHM 1/10W +/-5%	1	L606	PC
28-AA0474-ZFX	SMD. CAP 470NF 16VDC +80%/-20%	1	C612	PC
28-AA0474-ZFX	SMD. CAP 470NF 16VDC +80%/-20%	1	C620	PC
28-AB0102-KBX	SMD. CAP 1000 PF 50V +/-10% B	1	C636	PC
28-AB0102-KBX	SMD. CAP 1000 PF 50V +/-10% B	1	C628	PC
28-AB0102-KBX	SMD. CAP 1000 PF 50V +/-10% B	1	C625	PC
28-AB0102-KBX	SMD. CAP 1000 PF 50V +/-10% B	1	C624	PC
28-AB0102-KBX	SMD. CAP 1000 PF 50V +/-10% B	1	C619	PC
28-AB0103-KBX	SMD. CAP 0.01 UF 50V +/-10% 0603	1	C611	PC
28-AB0103-KBX	SMD. CAP 0.01 UF 50V +/-10% 0603	1	C617	PC
28-AB0103-KBX	SMD. CAP 0.01 UF 50V +/-10% 0603	1	C621	PC
28-AB0103-KBX	SMD. CAP 0.01 UF 50V +/-10% 0603	1	C623	PC
28-AB0103-KBX	SMD. CAP 0.01 UF 50V +/-10% 0603	1	C626	PC
28-AB0103-KBX	SMD. CAP 0.01 UF 50V +/-10% 0603	1	C640	PC
28-AB0103-KBX	SMD. CAP 0.01 UF 50V +/-10% 0603	1	C641	PC
28-AB0103-KBX	SMD. CAP 0.01 UF 50V +/-10% 0603	1	C644	PC
28-AB0103-KBX	SMD. CAP 0.01 UF 50V +/-10% 0603	1	C609	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C647	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C633	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C634	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C603	PC
28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C604	PC

28-AB0104-ZFX	CAP. SMD 0.1UF 50V +80%~-20% F	1	C622	PC
28-AB0152-KBX	SMD. CAP 1500 PF 50V +/-10% B	1	C614	PC
28-AB0200-JCX	CAP.SMD 20P 50V +/-5% 0603	1	C613	PC
28-AB0201-JCX	CAP.SMD 200PF 50V +/-5% 0603	1	C631	PC
28-AB0224-ZFX	CAP.SMD 0.22UF 50V +80-20%0603	1	C610	PC
28-AB0391-JCX	CAP.SMD 390P 50V +/-5% 0603	1	C618	PC
28-AB0472-KBX	CAP.SMD 4700PF 50V +/-10% 0603	1	C630	PC
28-AB0680-JCX	SMD. CAP 68 PF 50V +/-5%	1	C646	PC
28-AB0682-KBX	SMD. CAP 6800PF 50VDC +/-10%	1	C632	PC
33-ELL109-KTX	SMD.COLL MGFI2012CIROKT	1	L601	PC
33-ELL568-KTX	FXDIND SM 0805 0U56 PM10	1	L607	PC
33-ELL828-KTX	SMD. COIL 0.82 UH +/-10% 0805	1	L602	PC
33-ELL828-KTX	SMD. COIL 0.82 UH +/-10% 0805	1	L612	PC
33-KLN100-NTX	CHIP BEAD	1	L605	PC
13-M24C64-W6B	IC 64K EEPROM M24C64-WMN6	1	U17	PC
13-W320EB-70B	32MBIT FLASH M29W320EB-70N(WRITE)	1	U5	PC
13-00M24C-08B	IC EEPROM 8K M24C08(WRITE)	1	U9	PC
13-AL016D-70BT2	16MB FLASH S29AL016D70TFI02(WRITE)	1	U7	PC
13-AT24C0-2BB	ATMEL 2K EERROM AT24C02BN-10SU-1.8 WRITE	1	U10	PC
13-AT24C0-2BB	ATMEL 2K EERROM AT24C02BN-10SU-1.8 WRITE	1	U11	PC
13-AT24C0-2BB	ATMEL 2K EERROM AT24C02BN-10SU-1.8 WRITE	1	U41	PC